FEMALE SEXUALITY SEMINAR

PROBLEM:

A female church member comes to you with the statement that she and her lover are having difficulties relating to each other sexually because of their Christianity. They have no problem dealing with their homosexuality -- they accept that -- but the actual lovemaking between them is difficult because they both feel that "Christian women don't."

Using any of the books on the list or any books you can justify using, write a 3-4 page paper describing a plan of counselling that you might go through with them.

Recognize that in West Podunk, the M.C.C. minister or counselors may be the only gay sex therapy in the area, and no matter how helpless you feel, you may be their only resource. Understand, too, that even if there are sex therapists in the area, the bets are they know nothing about Lesbian sexual techniques, except maybe in theory, or by analogy. You do, hopefully.

In your paper deal with the theological aspects, the interpersonal aspects, the sexual needs of each of the partners and some specific suggestions for a healthy, loving, sexual relationship.

FEMALE SEXUALITY SEMINAR

1. Adams, Elsie and Mary Louise Briscoe: Up Against the Wall, Mother... Glencoe, Bev. Hills, 1971 (Particularly the excert from The Myth of the Vaginal Orgasm).

2. Brownmiller, Susan: Men, Women and Rape. Bantam, N.Y. 1975.

3. Covina, Gina and Laurel Galana: The Lesbian Reader, Amazon, Oakland, 1975.

4. Dodson, Betty: Liberating Masturbation, (Available from Betty Dodson, P.O. Box 1933, N.Y. 10001 - $3.50).

5. Friedan, Betty: The Feminine Mystique, Norton, N.Y. 1974.

6. Hite, Shere: The Hite Report, MacMillan, N.Y. 1976.

7. Marti, Del and Phyllis Lyon: Lesbian Love and Liberation. Multi-Media Center, 1525 Franklin Street, San Francisco, 94109 - $1.95).

8. Mickley, Richard: Christian Sexuality, Fellowship Press, Los Angeles, 1975.

9. Nelson, James B.: Embodiment: An Approach to Sexuality and Christian Theology. Augsberg, Minneapolis, 1978.

10. Nomadic Sisters Collective: Loving Women. P.O. Box 793, Sonora Calif. 95370 - $3.50) (Probably the best of its kind.)

11. Richardson, Herbert: Nun, Witch and Playmate: The Americanization of Sex. Harper and Row, 1971. (Excellent chapter on communalization of sex.)

12. Sisley, Emily and Bertha Harris: The Joy of Lesbian Sex. Simon and Schuster, N.Y. 1977. (The text is for women, the pictures are for men, and it's a cooptation.)

13. Vida, Ginny: Our Right to Love. National Gay Task Force. New York, 1976. (If you don't own a copy now, shame on you!)

14. Wittig, Monique: The Lesbian Body. Peter Owen, London, 1975.

15. Wolff, Charlotte: Love Between Women, Harper Colophon, N.Y. 1971.

16. Kiss Daddy Goodnight. (A study of women's reactions to incestuous relationships with their fathers.)

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VD Handbook

VD Handbook

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introduction

In 1974 there were approximately three million cases of gonorrhea and one hundred thousand cases of infectious syphilis in North America. In some communities, 10-20% of young people have gonorrhea and it is the fortunate individual who has several lovers without catching gonorrhea from one of them. The situation has reached a critical point and requires immediate action, for VD is not only an unpleasant hindrance to the free expression of human sexuality, it is also a significant drain on the health of North Americans.

To date, action against VD taken by various organizations, from government public health departments to free youth clinics, has been mainly technical in approach; that is, it has concentrated on the detection and treatment of existing cases. But venereal diseases are social diseases, spread by person to person sexual contact and therefore greatly influenced by social factors which affect the nature of human relationships.

Many human relationships in our society, from the factory assembly line to the bedroom, are based on exploitation and not on mutual respect and responsibility. Therefore, it is not suprising to find that many people who have venereal disease fail to inform their lovers of their common infection. Most of the diseases described in this book produce early and obvious symptoms in men, while in women, they may continue unnoticed for long periods of time. This means that unless an infected man informs a woman of her infection, she may unknowingly pass the disease on to other lovers as well as suffer the complications of untreated infection herself. And so the disease spreads.

Most people have little knowledge about the transmission, symptoms or treatment of venereal disease. In school, students receive little more than sketchy descriptions which serve to confuse more than to inform, and sombre advice to live a clean and "moral" life. More than any other human disease, venereal disease has been mystified, misunderstood and exaggerated. Even when symptoms are obvious, many people are not aware of their significance and even when the existence of infection is realized, many are afraid to go for treatment. And so the disease spreads.

Those who hesitate to go for treatment are often justified. With few exceptions, private doctors and those working in hospital and public health VD clinics treat all men and women who have a sexually transmitted disease as little more than criminals - immoral, "promiscuous", untrustworthy, dirty. Women, homosexuals, black people and the poor are especially liable to be treated with such contempt. Of course, such attitudes affect the quality of medical care, which often descends to dismally low depths. The editors of this publication have witnessed medical mistakes in VD clinics, mistakes the likes of which would never be tolerated in any other field of medicine. We have also witnessed sexual exploitation and physical cruelty. Protests from medical students and interns are almost futile. We have seen patients come once to a clinic and, embarassed, hurt and insulted, they never return. And so the disease spreads.

Throughout history, venereal diseases have been most common during wartime. In the chapter on gonorrhea we consider the influence that the war in Southeast Asia had on the world-wide incidence of gonorrhea. In the parts of S.E. Asia which were occupied by U.S. forces, large numbers of women were forced into prostitution by the disruption of their native culture and economy. For these women the only available form of treatment for gonorrhea was Black Market penicillin of low quality. Self-administration of such penicillin led to the development of a penicillin-resistant form of gonorrhea, the so-called "Vietnam Rose". Penicillin resistant gonorrhea was imported to North America by U.S. soldiers returning from Vietnam. Despite repeated articles in medical journals, many uninterested doctors remained unaware of the existence of such gonorrhea for several years. Penicillin resistant gonorrhea can be cured by the right amount of the right antibiotic; however, inadequate treatment serves only to hide symptoms and not cure the disease. Without symptoms, the infected person believes himself cured and continues to pass the infection on. And so the disease spreads.

The Canadian and U.S. governments have devoted large sums of money to the construction of new VD clinics, to frantic research for an anti-gonorrhea and an anti-syphilis vaccine that would prevent people from catching these diseases and to mass testing programs for the detection of infected people who do not have symptoms. But reliance on such technical means alone will not eliminate VD. Many of the new VD clinics provide just as bad medical care as the old. Research for vaccines has been singularly unproductive and it is impossible to test all sexually active people often enough without their full cooperation and understanding. The futility of the technical approach used alone is witnessed by the ever growing incidence of gonorrhea. It is becoming increasingly clear that the only way to eradicate VD is to change the aspects of our society which permit these diseases to flourish.

We must immediately initiate mass education programs to attack the ignorance and confusion surrounding venereal diseases. All men and women have the human right and responsibility to have scientific knowledge about their bodies, their sexuality and the diseases related to sexual intercourse. We cannot rely on government health services to

conduct such mass education programs, for they are crippled both by a lack of confidence in the public's ability to understand the scientific information and by an incredibly antiquated moralistic attitude. In a publication currently distributed by the Canadian Department of National Health and Welfare, young people are advised that "The only sure way to avoid venereal disease is to avoid promiscuous sexual relations... By avoiding cheap dance halls, bars and all-night hangouts, one can avoid the kind of people who continue to disseminate venereal infection." A similar government publication states that "Young people must realize that there is danger in any sex contact which is outside of healthy marriage".

The publication of the VD Handbook is our contribution to the mass education programs which must be initiated to serve the people. Such work should be continued on a local level by means of workshops, lectures, pamphlets and personal counselling. Local groups will have to research and disseminate information specific to their area including: whether or not minors need parental consent in order to be examined and treated (variable in different provinces and states); what is the legal position and power of the public health investigator; which doctors and clinics are sympathetic and cooperative and which should be avoided. It is the urgent responsibility of organizations such as community and youth clinics, student associations, women's liberation and gay liberation groups to provide such information. These groups should provide initiative in challenging local medical authorities to make them responsive to our needs as sexually active human beings.

In addition to obtaining factual information about VD, we must also educate ourselves to accept our human responsibilities to our lovers. People who have VD must immediately inform all recent sexual partners of their common infection. We must not leave such responsibilities to the social health nurses who work in VD clinics. We must create a new morality based not necessarily on premarital virginity and monogamous relationships, but rather on mutual respect and concern. We must learn to enjoy free **and** responsible love.

Community clinics and youth clinics have a special role in organizing people to demand that government, health departments and hospitals answer to our human needs. Not only must community and youth clinics take the lead in mass education, they must also provide exemplary medical care, to demonstrate what all medical care should be like. Unhappily, this has not been the case in all free clinics. Anxious to treat all patients, many free clinics have allowed the quality of their medical care to deteriorate. Standards of sterility, medical records and antibiotic treatment have gone down. Medical students and para-medics have been treating cases of serious disease which should receive careful attention from experienced clinicians. Not only is such treatment consistent with the low standards set by hospitals and public health clinics, it also takes the pressure off these institutions so that they are not forced to change.

Where community and youth clinics do not have the staff, facilities or funds to treat all cases of VD in a particular area, they should not attempt to do so. It is easier, more productive and far cheaper to work on mass education programs which provide the people with the information they need to make concrete demands of the official health facilities. Medical students and para-medics have an important clinical contribution to make as "patient advocates". A patient advocate is a medically informed person, in whom the patient has confidence, who will be present during the examination and who will ensure that the patient is treated adequately and with dignity. It is important to realize that the hospitals and VD clinics are our hospitals and our VD clinics; they are supported by our tax dollars and they are supposed to serve our needs. It may be necessary to force these institutions to answer to our needs, but it is hopeless to duplicate their facilities.

With knowledge of the technical and social aspects of venereal disease, the people will be in a position to effectively demand that private doctors, hospitals and public health VD clinics provide high quality medical care for all men and women who have VD. No longer will we accept incompetent, uninterested doctors. No longer will we accept the endless waiting, the hurried examinations and the insulting questions that are so common to VD clinics. We want decent, thorough, expert, gentle medical care. This is our right as human beings and we must learn enough about our bodies, and about medicine, so that we can intelligently insist on receiving nothing less.

The VD Handbook was first published in 1972 and since then, nearly three million copies have been distributed in Québec, Canada, the USA, Europe and Australia. Our other major publication, the Birth Control Handbook, has also been distributed widely.

It is our goal to bring our medical expertise to the service of the people. But we cannot accomplish this without the guidance, criticism, support and encouragement of our sisters and brothers who distribute and receive our publications. We look forward to hearing from you and encourage your suggestions for change and revisions in our publications.

Medicine for the People

Photocell - Clara Gutsche

anatomy

In order to protect our bodies from disease, we must know something about them. If we know what the different parts look like, how they feel and what function they perform, we are more likely to detect early signs of disease. Unfortunately, we have not been taught to appreciate our bodies and the pleasures we can derive from them. When we explore our bodies, we are struck by both the overwhelming similarities and the range of differences. When we hide our bodies from each other, this range of differences becomes distorted and we spend sleepless nights worrying whether or not we fit the "normal" mold.

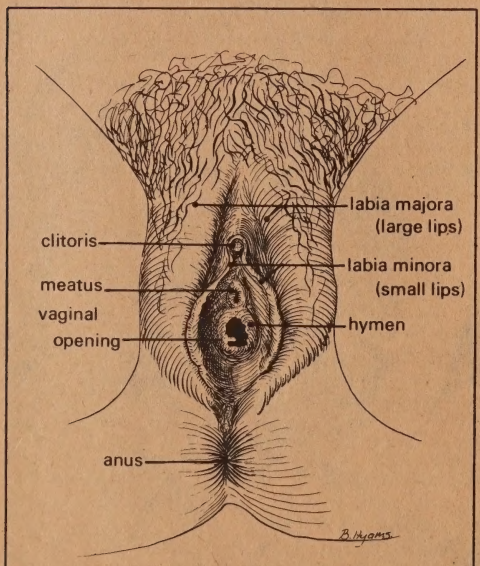
The following anatomical descriptions concentrate on those structures which are affected by sexually transmitted diseases.

Female anatomy

Vulva: external genital parts

Mons Veneris: The cushion of fat over the pubic bone is known as the mons veneris - a latin term meaning "the hill of Venus" (the goddess of love). From puberty onward, it is covered with pubic hair which varies from person to person in colour, amount and texture.

Labia majora: These "large lips" are two folds of fat covered by skin which lie on either side of the vaginal opening. In front they merge into the mons veneris. Externally the skin is dry and covered with pubic hair; the skin facing the vaginal opening is moist. In children the labia majora are close together protecting the inner organs whereas in mature women, they are apart.



Vulva: female external genitals

Beneath each large vaginal lip is a gland a bit larger than a pea, called a **Bartholin's gland.** A duct leading from the gland opens onto the labia minora at the back end of the vaginal opening. These glands release only a few drops of mucus when a woman is sexually excited. Bartholin's glands are susceptible to infection with bacteria transferred during sexual intercourse. Unless infected, Bartholin's glands cannot be felt on examination.

Labia minora: These "small lips" are two folds of moist and sensitive tissue between the labia majora. The two lips meet in front where they partially cover the clitoris. When a woman is sexually stimulated, the labia minora become slightly swollen with blood.

Clitoris: This exquisitely sensitive structure is located in front of the urinary opening. The clitoris contains many nerve endings as well as erectile tissue which becomes engorged with blood during sexual stimulation. The clitoris becomes enlarged and hard much as the male penis does.

Urinary meatus: The meatus is the opening of the urethra through which urine from the bladder is released. It is located between the clitoris and the vaginal opening.

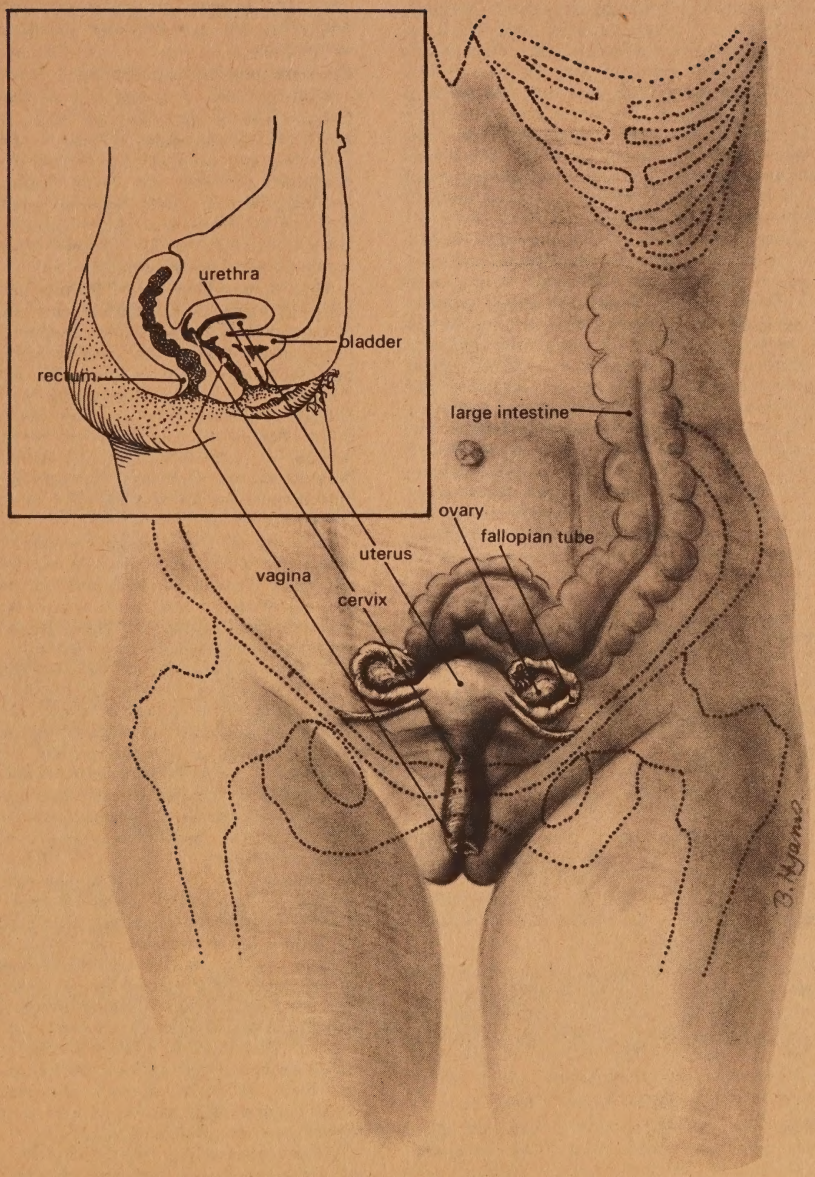
Hymen: The hymen is an elastic membrane partially covering the opening of the vagina. The opening is still large enough for menstrual blood to pass through. The hymen is stretched or torn during the woman's first act of sexual intercourse. Many women use their fingers to gradually stretch the hymen in advance so that intromission (insertion of the penis into the vagina) is not painful.

Internal reproductive organs

Vagina: The vagina is a slightly muscular tube about 4 inches long, located between the bladder and the rectum. Normally the walls of the vagina touch each other but they can be stretched apart by a tampon, a penis or a baby during delivery. The outer third of the vagina contains many nerve endings responsive to sexual stimulation. Near the opening there is a muscular sphincter (muscle surrounding an opening which is opened or closed by muscular contractions) which contracts rhythmically during orgasm. This sphincter prevents a tampon from falling out. The inner third of the vagina has few nerve endings and therefore it is not sensitive.

The vaginal walls are lined with a mucous membrane which is continuously shedding old cells and replacing them with new ones. Such a membrane exists in parts of the body (mouth, anus) which come into contact with the external environment and which suffer regular wear and tear. In some women, this turnover of vaginal cells is noticeable as a slight clear or white discharge which becomes heavier at ovulation (mid-cycle) and just before menstruation. Unless this discharge is irritating or has a bad smell, it is perfectly normal.

In a healthy woman the vagina contains many



Female pelvic organs

micro-organisms most of which are rod-shaped bacteria called lactobacilli. These bacteria break down sugar stored in the vaginal cells and produce lactic acid. Since most disease-causing organisms cannot live in an acid environment, the lactobacilli help to prevent infection.

Uterus: The womb or uterus is a pear-shaped muscular organ which holds the fetus during pregnancy. It is made up of a top triangular body which sits behind the bladder and in front of the rectum, and a narrower cervix which extends into the vagina. In a woman who has never been pregnant, the uterus is about 3 inches long and its inner walls practically touch each other. The uterus is supported in place by several folds of tissue including the round ligament and the broad ligament. The broad ligament covers the triangular body of the uterus and supports the fallopian tubes and ovaries.

The inner walls of the uterus are lined with a spongy membrane called the **endometrium.** It is made up of many glands and small blood vessels which undergo regular changes during a woman's menstrual cycle. As one menstrual period ends, the ovaries produce hormones (estrogen and progesterone) which stimulate the endometrium to grow. The endometrial glands enlarge and become filled with nourishing substances. Should an egg become fertilized, it gets its nourishment from the endometrial glands until the placenta and the cord develop. If fertilization does not occur, the hormonal stimulation changes and the outer layers of the endometrium break down. The dying tissue is pushed out of the uterus via the cervical canal. This shedding of the endometrium, called menstruation, marks the beginning of a new cycle.

The cervix of the uterus is a muscular tube which extends into the vagina. The inner part of the tube (the cervical canal) is lined with mucus-secreting cells. These cells are susceptible to infection by bacteria.

Fallopian tubes: The two fallopian tubes are attached high on either side of the triangular body of the uterus and extend about 4 inches towards an ovary. An egg released at ovulation must pass through this narrow tube in order to reach the uterus. The tube assists the movement of the egg by muscular contractions and by the waving motion of tiny hairs (cilia) on its inner surface. If the tube becomes infected, scar tissue may make it difficult, if not impossible, for the egg to reach the uterus. Scarring of the tubes is the most common cause of sterility in young women.

Ovaries: The ovaries are small, almond-shaped organs which lie at the back of the broad ligament on either side of the uterus. At midpoint in each menstrual cycle, one ovary releases an egg from a follicle on its surface. The ovaries also secrete hormones (estrogen and progesterone) which stimulate the endometrium (uterine lining) to grow.

Bladder: The bladder is a muscular sac lying behind the pubic bone and in front of the uterus and vagina. Urine flows from the kidneys, through two tubes called ureters, into the bladder, where it is stored temporarily. The urine is excreted from the body through the urethra. Since the female urethra is only 1½ inches long, infection of the urethra usually spreads upwards into the bladder.

Rectum and anal canal: The rectum and anal canal are the end parts of the large intestine through which feces ("shit") are excreted from the body. The rectum lies behind the uterus and ends at the anal canal behind the lower third of the vagina. The anal canal is about 1½ inches long. Both the rectum and the anal canal are lined with mucous membranes.

The Gynecological Examination

After puberty, a woman should have an annual gynecological examination to make sure that the pelvic organs are healthy. Some conditions such as gonorrhea and cervical cancer often do not produce symptoms and may only be discovered during such an examination. Most general practitioners are qualified to do this procedure; therefore, if a woman has a GP who knows her medical history there is no reason for her to see a specialist.

Most women have mixed feelings about the gynecological examination. During this procedure it is necessary to allow the doctor greater intimacy with our bodies than we are used to giving to anyone but our lovers. Few of us really understand the "internal" or how it is performed. We may catch a glimpse of the instruments being used but, for most of us, their function is unknown. We are vulnerable because we lack this knowledge. We are vulnerable because we are physically exposed. We are vulnerable because we are so dependent on the doctor for our health.

How do doctors respond to our vulnerability? A few take advantage of it and exploit us sexually; but most doctors simply ignore our feelings. Most medical students start with some sensitivity but medical school grinds this sensitivity out before they graduate. In gynecological training, the medical student hears his clinical teachers contemptuously refer to women of all ages as "girls" who "urinate once a day, defecate once a week, menstruate once a month, parturate (give birth) once a year and copulate at any conceivable moment." Most medical students, eager to become doctors, succumb to the constant anti-woman attitude that is so typical of North American medical schools.

When doctors are not supportive to women, the quality of medical care goes down. Fearing a lecture on morality, many women give inadequate or misleading sexual histories. Women are so tense during the internal examination that it is difficult for the doctor to interpret what he is feeling. Some doctors try to get the woman to relax by asking superficial questions about her children, her schoolwork, her job - about anything except what is being done and why. Doctors must learn to understand that even if a woman is relatively relaxed, her entire attention is directed at what his hands are doing to her body. It is the doctor's responsibility to act patiently and explain everything he is doing in terms which the woman can understand.

We must learn about our bodies and the medical procedures necessary for the maintenance of our health. With this knowledge, we will be in a better position to be active participants in decisions about our own health.

History: On the first visit to a doctor, a woman's general medical history should be taken, including past illnesses or operations, allergic reactions to drugs, present illnesses and medication, and general state of health. The woman should give the following information about her gynecological history: At what age did she begin menstruating? Are her cycles regular? What is the duration and amount of menstrual flow? Does she have cramps before, during or after her period? Does she use external pads or internal tampons? What method of birth control has she used and with what success? Has she had any gynecological problems and how have they been treated? If a woman has been pregnant, she should also give an obstetrical history including: number of pregnancies, miscarriages or induced abortions; type of delivery (vaginal or ceserean); premature or full term delivery; weight of newborn; complications before, during or after delivery; whether or not she breastfed; and plans for future pregnancies.

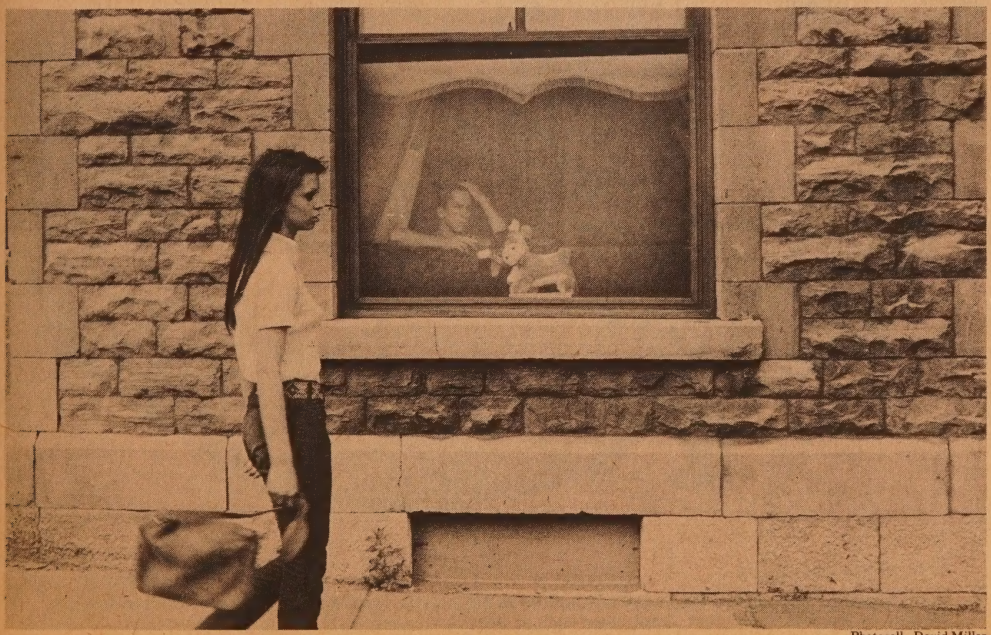
Such thorough questioning is not necessary at each visit. Women attending clinics where the doctor is rarely the same at each visit should ask if her chart has been read prior to examination.

If the woman has come to the doctor because of uncomfortable symptoms or suspected disease, the history of this immediate problem should be taken in detail. When did she first notice the problem? Is it causing her pain or discomfort? Is it always noticeable or does it come and go? Is it worse or better during any particular activity such as urinating or making love? Has she done anything to make it better (medication, douching) and has this worked? These symptoms should direct the doctor's approach to the physical examination. For example, if the woman used a douche just before seeing the doctor, the nature of a discharge may be temporarily changed. If the woman says she has been very sore, the doctor should be especially gentle and sympathetic when examining her.

Physical examination: The woman is left alone to undress, and is given a robe or sheet to wear. A nurse records the woman's height, weight and blood pressure. If the woman has had burning or pain on urination, she will be asked to give a "mid-stream" sample of urine. To do this, the woman first washes her external genitals with a soap-filled pad. She sits on the toilet and only after she has begun to urinate does she hold a bottle under the stream to collect the sample. The bottle should be removed before the woman finishes urinating. The urine is sent to the laboratory where it is tested for bacteria. The mid-stream procedure ensures that any bacteria found in the urine come from the bladder and not from the urethra or external genitals.

While the woman sits on the examining table the doctor examines her head, neck, breasts, lungs, heart and abdomen. With the woman lying on her back, a further check is made of the breasts, abdomen and groin. The doctor looks for swellings, unusual growths or other signs of disease. Women should be instructed how to examine their own breasts, and encouraged to do so once each menstrual cycle.

For examination of the vulva and pelvic organs, the woman lies on her back with her legs apart in stirrup-like supports. The doctor examines the vulva for inflammation, sores, colour changes or growths.



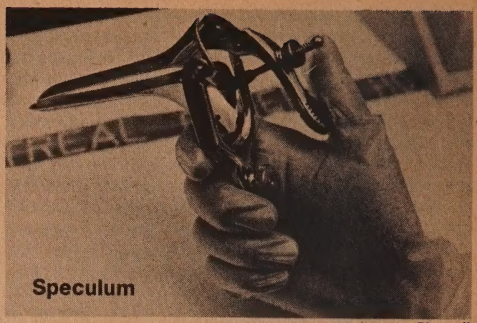
Photocell - David Miller

To inspect the vagina and cervix, the vaginal walls are held apart by a speculum. The speculum is a metal or plastic instrument with rounded blades which should be warmed and lubricated before being inserted into the vagina. When the blades are opened gently, the vaginal walls are separated.

The Pap test for cervical cancer is done with the speculum in place. With a flat stick, cells are gently scraped from the surface of the cervix especially from around the cervical canal. These cells are placed on a glass slide and sent to a laboratory where the cells are examined for changes typical of cancerous cells. This procedure may be uncomfortable, but not painful.

Sexually active women should have a test for gonorrhea at least once a year, whether or not they have symptoms. This is also done with the speculum in place. A cotton-tipped swab is inserted about ½ inch into the cervical canal. If the woman is relaxed, this procedure may be uncomfortable but should not be painful. A sample of cervical secretions is sent to a lab for the growth and identification of bacteria.

If the woman complains of itchiness or vaginal discharge the doctor should take a sample of vaginal secretions to examine under a microscope immediately.



Speculum

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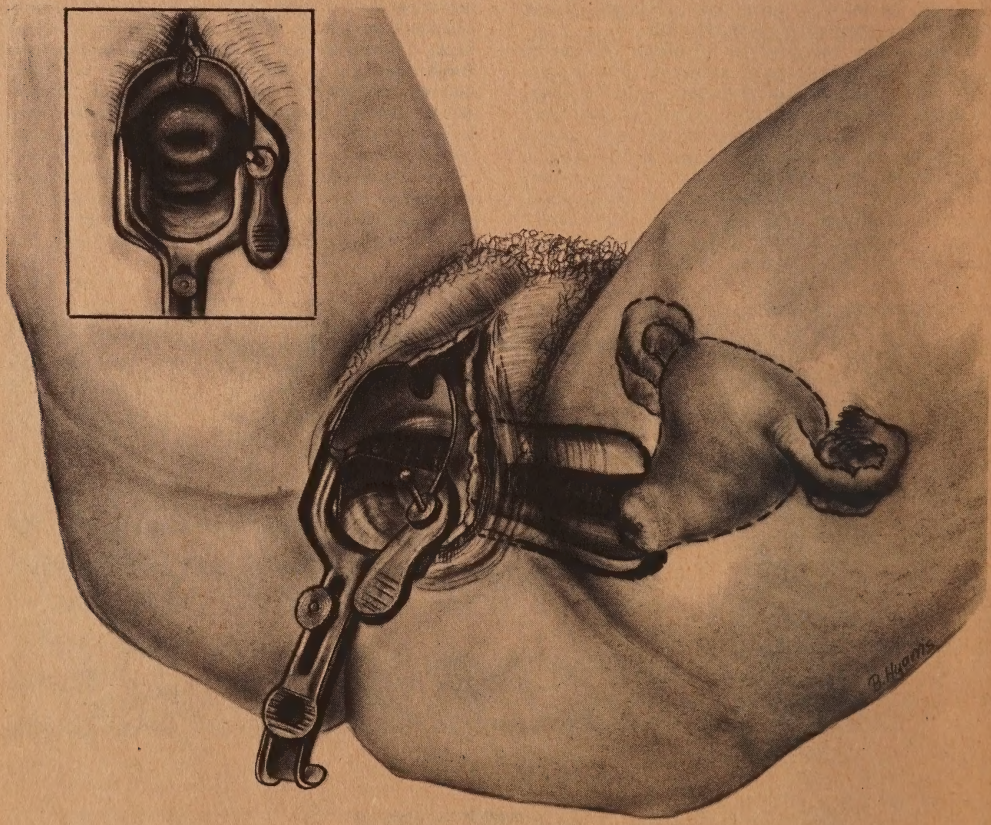


Use of the speculum

An internal-external view of the speculum in place in the vagina. The blades of the speculum are opened holding the vaginal walls apart. Inset: the cervix as the doctor sees it with the speculum in place.

The doctor removes the speculum by closing the blades and withdrawing it gently. The doctor then performs an "internal" or pelvic examination in order to feel the size, shape, texture and mobility of the pelvic organs. Two fingers of a surgically gloved hand are inserted deep into the vagina. With the other hand on the lower abdomen, the doctor moves the uterus from side to side and feels for unusual growths. Unless there is swelling or abnormal growth, the ovaries and fallopian tubes cannot be felt. If the woman is healthy and relaxed, the internal may be uncomfortable but should not be painful.

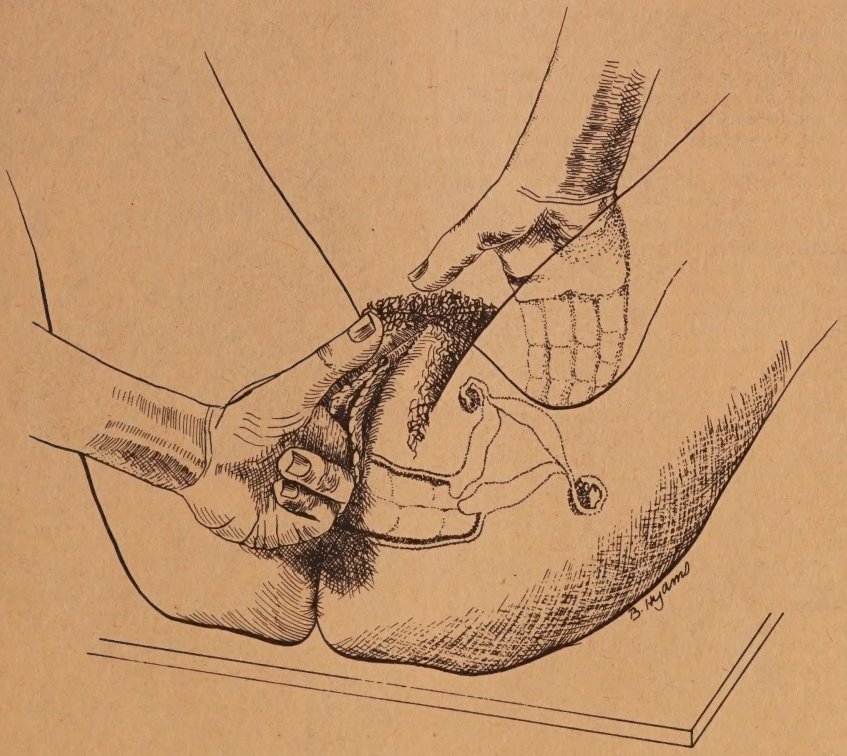
If an abnormality is detected during a pelvic examination the doctor may perform a similar examination of the rectum. The doctor can reach higher into the pelvis by this route and in some conditions such as inflammation of the fallopian tubes, rectal examination is less painful than vaginal examination. Rectal examination is important in older women for the early detection of rectal cancer.

Gynecological hygiene: The genital organs require no special care. Washing the vulva with soap and warm water during a bath or shower is enough. There is no reason why a woman should not bathe or shower during her period. Douching (flushing out the vagina with a warm solution) is unnecessary and usually does more harm than good. Douching often upsets the balance of micro-organisms in the vagina by changing their environment.

Vaginal sprays and deodorants are useless products forced on women through high powered advertising campaigns. In healthy women the vulva has a characteristic smell which many sexual partners find exciting. A woman should seek medical attention if her genitals smell bad rather than disguising this symptom with deodorants and perfumes. The vaginal sprays often dry up normal vaginal secretions causing irritation and discomfort.

When a woman wipes herself after moving her bowels, she should wipe from front to back to avoid bringing bacteria from the anus to the urethra and vagina.

For similar reasons, internal tampons are preferable to external pads during the period. The pad provides a direct link from the anus to the vagina and urethra. The blood on the pad is an environment in which bacteria thrive.



Pelvic examination ("internal")

An internal-external view. The doctor puts two fingers in the vagina and presses down on the lower abdomen with the other hand. The pelvic organs can be felt between the two hands.

Male anatomy

This description of the male organs follows the path of the sperm from the testicles where they are produced through a series of tubes to the tip of the penis where the sperm leave the body when a man ejaculates ("comes"). Most venereal diseases follow this pathway in reverse. They enter the body at the opening in the tip of the penis or through the skin of the external genitals. If left untreated, the disease travels through the tubes and causes complications in the deeper structures.

The arrangement of the male reproductive structures is not easy to describe in words. In the female all the reproductive structures are within the pelvis, that is, within the area surrounded by the hip bones on either side, the pubic bone in front and the lower end of the spine in back. However, in the male, the testicles are not in the pelvis but hang within the scrotum between the upper thighs. The tubes which transport sperm leave the testicles to enter the pelvis in front, pass towards the back where they unite into one tube which exits again in front through the penis. It is important to keep in mind that from the testicles to the ejaculatory duct, all the internal structures are doubled, that is, there is one on the left and one on the right.

Scrotum: The scrotum is a two-chambered sac which contains the two testicles. This sac lies behind the penis and between the upper thighs. The skin of the scrotum is wrinkled and covered with pubic hair. In cold weather, muscles in the scrotal wall contract to bring the testicles closer to the warmth of the body. The scrotum is also sensitive to sexual stimulation. In certain venereal diseases, sores may appear on the surface of the scrotum.

Testicle: The testicle is an oval-shaped structure about 1½ inches long and 1 inch thick. It is divided into about 250 compartments, each containing several seminiferous tubules. From puberty onward, sperm are produced in these tubules. Cells lying between the tubules secrete male hormones. The seminiferous tubules join together into about a dozen ducts which form the first part of the epididymis on the top of the testicle.

Epididymis: The ducts of the epididymis join together to form one tightly coiled duct running down the back of the testicle. The cells lining the duct secrete a substance which stimulates the development of sperm. If the epididymis becomes infected, scar tissue may form blocking the passage of sperm and leaving the man sterile.

Vas deferens: The coiled duct of the epididymis leads into a straight tube called the vas deferens which is about 18 inches long and runs from the scrotum into the pelvis. For this distance it is accompanied by nerves, blood vessels and muscle fibres and together these structures form the spermatic cord. The spermatic cord can contract to pull the testicle into the safety of the body. Within the pelvis, the vas deferens continues towards the bladder. Just before the prostate, the vas enlarges to form the ampulla or "seed reservoir". Muscular contractions of the vas push sperm from the epididymis along this long route to the ampulla.

Seminal vesicle: To the side of each ampulla is a gland about 2 inches long called the seminal vesicle. The duct of this gland joins the ampulla at the ejaculatory duct within the prostate. The seminal vesicles produce substances important for the survival of sperm; they release these substances just before ejaculation. The ejaculatory duct from both the left and the right side join the single urethra, still within the prostate.

Prostate: The prostate is a small, chestnut-shaped organ made up of gland and muscle tissue. It is located beneath the bladder and it is penetrated from top to bottom by the urethra. The glands of the prostate secrete an alkaline fluid which helps the sperm to move by themselves. This fluid is released into the urethra only a few seconds before ejaculation. Secretions from the prostate make up most of the seminal fluid (semen). The prostate can be felt with the finger during a rectal examination.

Photocell - David Miller

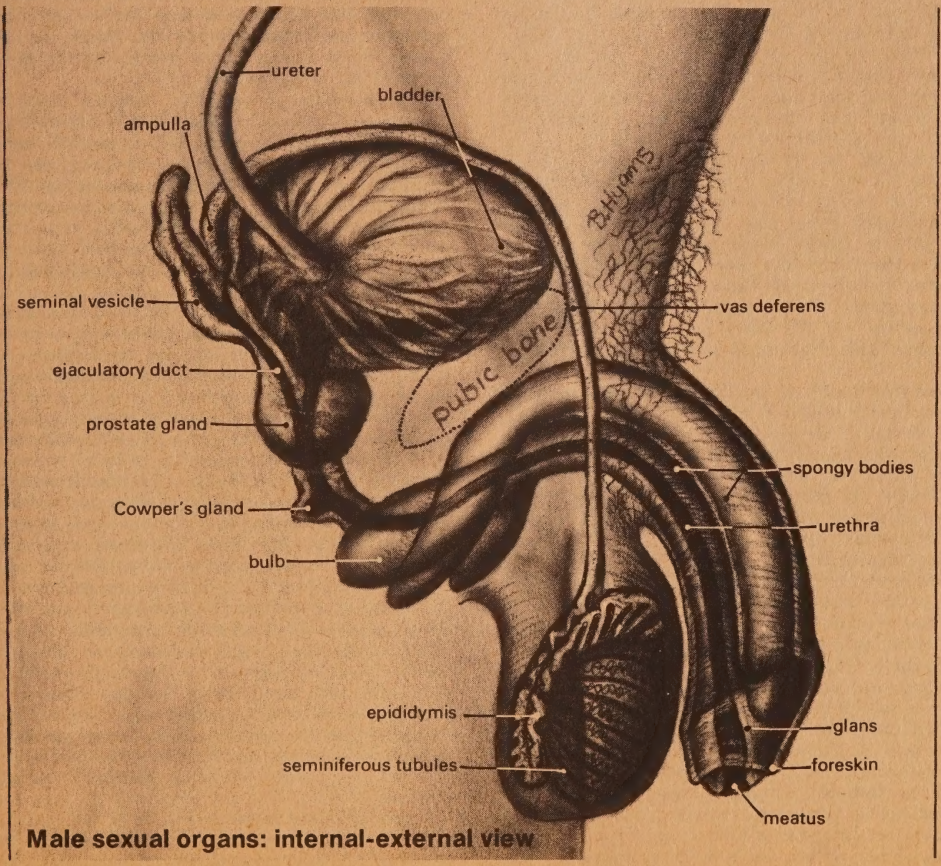
Bladder: The bladder is a muscular sac lying behind the pubic bone and in front of the rectum. Below it is the prostate. The bladder collects urine which flows into it from the kidneys in two tubes called ureters. Urine is excreted from the bladder through the urethra.

Cowper's glands: These two small glands join the urethra as it leaves the prostate. They secrete a few drops of lubricating fluid during sexual excitement.

Urethra: The urethra is an 8 inch tube which travels from the bladder, through the prostate, beneath the pubic bone and through the penis. The external opening at the tip of the penis is called the urethral or urinary meatus. During urination, urine from the bladder flows through the urethra. During ejaculation, a sphincter muscle at the opening of the bladder closes, so that seminal fluid from the prostate and ejaculatory ducts can pass through the urethra without contamination by urine. That is, it is impossible to urinate while ejaculating. The lining of the urethra is susceptible to infection by bacteria and viruses which can enter through the meatus.

Penis: The penis is made up of three bodies of spongy erectile tissue which becomes hard and swollen with blood during sexual excitement. Two of the spongy bodies make up the bulk of the shaft of the penis. The third spongy body runs beneath the other two, carrying the urethra. At the root, the two large spongy bodies separate and are attached to the bones of the pelvis, while the third body enlarges to form the bulb of the penis. At the tip of the penis, the third body enlarges to form the glans which is highly sensitive to sexual stimulation. The skin of the penis is thin and loosely attached. A free fold of skin called the foreskin covers the glans. In most North American hospitals the foreskin is surgically removed within the first week after birth. Removal of the foreskin, known as circumcision, prevents the accumulation of smegma, a waxy secretion which is secreted by glands beneath the foreskin. Uncircumcised men must pull back the foreskin and wash away accumulated smegma regularly.

In the adult male the non-erect or flaccid penis is about $3\frac{1}{4}$ to $4\frac{1}{4}$ inches long; when erect it may be 6 to $7\frac{1}{2}$ inches long and about $1\frac{1}{2}$ inches wide. Since the clitoris and not the vaginal barrel is the center of female sexual sensitivity, the length or width of the erect penis has little effect on the pleasure a woman receives during sexual intercourse.



Male sexual organs: internal-external view

gonorrhea

Gonorrhea has been a frequent complication of lovemaking through the ages. The first record of gonorrhea is in the Old Testament, book of Leviticus (about 1500 B.C.) where symptoms are described in detail. The greek physician Hippocrates (400 B.C.) stated that gonorrhea resulted from "excessive indulgence in the pleasures of Venus", the goddess of love. Another ancient Greek physician, Galen (200 A.D.) mistakenly believed that gonorrhea is caused by an involuntary loss of male semen. Galen named the disease from the Greek words "gonos" (seed) and "rhoia" (a flow). Eventually, the true nature of the transfer of gonorrhea from person to person was understood. In the year 1161, brothels in London were forbidden by law to house prostitutes "suffering from the perilous infirmity of burning" (the burning pain felt on urination by most men and some women with gonorrhea). The French called gonorrhea "la chaude pisse" (hot piss) and also introduced the term "clap" sometime at the end of the 1300's.

Gonorrhea has always been far more common during military conflict. The Old Testament records that after making war on the Midianites, a "plague" of gonorrhea struck the Israelites. Moses ordered all Israelite troops quarantined for seven days so that soldiers who had been infected by Midianite women could be discovered and treated. In 1793 the French general Carnot wrote that venereal disease, transmitted by the 3,000 prostitutes serving his soldiers, "killed ten times as many men as enemy fire".

The first significant world wide gonorrhea epidemic occurred during and after World War I. Among U.S. troops, gonorrhea was second only to influenza as the most important cause of illness and absence from duty. The incidence of gonorrhea fell during the 1930's but shot up again during World War II to levels as high or higher than today. With the end of the war and the introduction of penicillin, gonorrhea became much less common.

The lowest gonorrhea rates of this century existed during the 1950's, except in areas of continuing military conflict. In the early 1960's the world wide incidence again began to climb. Colonel J.H. Greenberg (MC, USA) reported that "Rates in Korea, Thailand and Vietnam reached high levels almost as soon as substantial numbers of troops were assigned, and the rates have remained high ever since."

As part of the U.S. invasion of Southeast Asia, more than two and a half million Americans were sent to Vietnam, Thailand, Laos and Cambodia. These young men were removed from wives and lovers, that is, removed from usual sexual relationships. Their sexual needs were answered by the tremendous number of native women and girls who were forced into prostitution by the disruption of the Southeast Asian culture and economy.

A prostitute runs a high risk of catching gonorrhea because of the large number of men with whom she must have sexual intercourse. Once infected, she can pass the disease on to many others. Medical care for civilians in U.S. occupied areas of S.E. Asia was hopelessly inadequate. U.S. military services did not treat civilians, except when doing research. Thus, gonorrhea was common among prostitutes in U.S. occupied areas.

Not all gonorrhea bacteria are exactly the same: some are naturally less sensitive to antibiotics than others. In other words, some gonorrhea bacteria can survive if only a small amount of antibiotic is present in the infected person's body. In U.S. occupied Southeast Asia the only gonorrhea treatment available to prostitutes was Black Market penicillin which was often of poor quality. When an infected prostitute treated herself with this "street penicillin" she succeeded only in killing off those bacteria which were most sensitive to the drug; the other less sensitive bacteria survived and her disease continued. Until the prostitute realized that her infection was not cured, she continued to have sexual intercourse and so infected other soldiers. The disease that she passed on was caused by the strongest of the bacteria which had caused her original infection.

This evolution of penicillin resistant gonorrhea bacteria continued in Southeast Asia on a tremendous scale after the Korean war. Wherever U.S. troops invaded, economic and cultural disruption was followed by prostitution and widespread gonorrhea. The Vietnamese and Cambodian people are now working to reachieve social stability. They will have to eliminate the antibiotic resistant gonorrhea which remains as one of the shameful legacies of the U.S. military presence.

An unknown number of American soldiers returned to the U.S. with a gonococcal infection acquired in Southeast Asia. Once in America, the soldiers gave their infections to wives and lovers. (Gonorrhea was not the only disease imported from S.E. Asia. Before 1965 only 50 to 100 cases of malaria were reported each year in the U.S.; in 1971, 4000 cases were reported.) Thus, penicillin resistant forms of gonorrhea appeared in the U.S., first in cities of the West Coast such as Oakland, California, to which many soldiers returning from Vietnam were shipped, then in the large cities of the East Coast, and finally in Canada. It became more and more difficult to cure gonorrhea with penicillin. The presently recommended dosage of penicillin for treatment of gonorrhea is eight times greater than it was before 1960.

For several years, many Canadian and American doctors were not fully aware of penicillin resistant gonorrhea, and continued to use low dosages of penicillin which had been effective in the past. This continued the evolution of the strongest gonorrhea bacteria, which were then spread by men and women who did not realize that their infections were not cured.

There are other factors, aside from the development of penicillin resistance by the gonorrhea bacteria, which have caused the current gonorrhea

epidemic. Although gonorrhea normally causes obvious symptoms in men within a week of sexual intercourse, symptoms usually do not appear in women for many weeks or even months after infection. Unless an infected man informs a woman that she may have gonorrhea, she can unknowingly pass the infection to other sexual partners, as well as suffer the consequences of untreated gonorrhea herself. Men are in a position of heavy responsibility to their lovers; however, North American society does not prepare men for such responsibilities towards women. Many human relationships in our society are based on the sexual exploitation of women by men. That many men do not inform their lovers of a gonorrhea infection is simply a continuation of such exploitation.

In North America gonorrhea is presently an epidemic disease with an estimated three million cases a year. More than 50% of those affected are under 25 years old and a similar majority live in large cities. In some urban areas, 10% to 20% of the population aged 15 to 25 have gonorrhea. This epidemic has been caused by a mixture of factors, both social and medical. We have the responsibility to learn about all aspects of this disease so that with the help of cooperative medical professionals, we can rid ourselves of this unnecessary and unpleasant complication to sexual freedom.

Transmission of gonorrhea

The bacteria that causes gonorrhea, the "gonococcus", is one of the most sensitive of all bacteria which cause human disease. Outside the human body the gonococcus dies within a few seconds. Thus it is almost impossible to catch gonorrhea from toilet seats, towels, cups etc. that have been used by an infected person. The only way the gonococcus can survive the transfer from one person to another is during very close physical contact such as vaginal, anal or oral-genital sexual intercourse.

The gonococcus grows well only in mucous membranes. A mucous membrane is a protective lining on the surface of those parts of the body which occasionally come into contact with the outside world. The moist lining of the mouth and throat, for example, is a mucous membrane. The vagina, cervix (opening of uterus), urethra (tube from bladder to outside) and anal canal are all lined by mucous membranes.

The common feature of all forms of sexual intercourse is that mucous membranes are brought into contact. During vaginal intercourse, the man's penis is in the woman's vagina and touches the cervix. During anal intercourse the penis is in contact with the anal canal and rectum. During oral-genital intercourse, one partner places his or her mouth on the other partner's genital organs. Bacteria move from the mucous membranes of an infected partner's sexual organs to the membranes of the uninfected partner's exposed organs. The bacteria do not always obtain a "foothold" in the uninfected partner; they often die during transfer from one person to another. A man has a 20% to 50% chance of catching gonorrhea from a single sexual exposure to an infected partner. The chances are probably more than 50% that a woman will develop gonorrhea after a single act of vaginal intercourse with an infected man. The risks of gonorrhea transmission during oral-genital or anal intercourse are not known exactly, but they are probably within the range of 20% to 50% after one exposure. If any form of sexual intercourse occurs with an infected partner several times, the chances of developing an infection are quite high.

Early symptoms in the male

Once gonorrhea bacteria successfully enter the penis, they invade the cells of the urethra (tube from the bladder, running through the penis), causing gonococcal urethritis. The body responds to this invasion with white blood cells carried by the bloodstream to the infected area. White blood cells attack and consume some of the bacteria, but the bacteria soon overcome the body's defences.

Most men who have a gonorrhea infection of the penis first notice symptoms 3 to 5 days after the infecting sexual intercourse. Symptoms can appear as early as 1 day or as late as two weeks after infection. At first, a thin, clear, mucous discharge seeps out of the meatus (opening of the penis). Within a day or two the discharge becomes heavy, thick and creamy. It is usually white, but may be yellow or yellow-green. The discharge is composed of dead urethral cells, bacteria and white blood cells. The lips of the meatus become swollen and stand out from the glans (fleshy tip of the penis). Most men feel pain and a burning sensation in the penis or just at the meatus during urination ("pissing"). This pain can be quite severe and urinating may be difficult. The urine is hazy with pus and sometimes contains a little blood. About 30% to 40% of infected men also have enlarged and tender lymph glands in the groin, (junction between the upper thighs and the lowest part of the abdomen). In some uncircumcised men gonorrhea bacteria multiply under the foreskin, causing irritation and redness of the glans of the penis.

Gonorrhea infection of the anus and rectum, called gonococcal proctitis, can develop in homosexual men who have anal intercourse with an infected male partner. Most men who have gonococcal proctitis do not have any symptoms. Some infected men notice an anal mucous discharge or mild irritation, and in a few cases, burning pain in the anus and blood or pus in the feces ("shit"). Since most men who have gonococcal proctitis do not have symptoms, they can unknowingly give their infection to their male lovers. Unless one partner has a venereal disease, anal intercourse is not "unsanitary" and can be enjoyed without fear of infection.

Complications in the male

If treatment of gonococcal urethritis is delayed for more than a few days after symptoms appear, the infection spreads up the urethra. Pain on urination becomes more severe and is felt in the whole penis, not just the meatus. Bacteria enter the tiny glands which lubricate the urethra, and in some cases they invade the deeper tissues of the penis.

After about two weeks, symptoms of urethritis begin to disappear on their own. The discharge becomes lighter and urination is no longer so painful;

however, bacteria are still present and the man can still infect his sexual partners. After 2 to 3 weeks of untreated infection, the bacteria invade the posterior urethra (upper part of the urethra) and the prostate gland. In 5% to 10% of untreated men, an abscess forms within the prostate gland. This causes a feeling of heat, pain or swelling in the lower pelvis or around the anus, severe pain on moving the bowels and a high fever. The enlarged, infected prostate presses on the bladder making it difficult or impossible to urinate. The abscess eventually breaks down into the urethra or rectum, releasing pus.

But most men do not develop a prostatic abscess and the untreated disease can continue for a long time causing only minor symptoms. From time to time, more obvious symptoms of discharge and pain on urination may reappear for a few days.

In about 20% of men who remain untreated for longer than a month, the bacteria spread down the vas deferens (tube from prostate to testicles) and reach the epididymis on the back of one or both of the testicles, causing gonococcal epididymitis. Epididymitis, which occurs more commonly on the left side, causes pain in the groin, a heavy sensation in the affected testicle and the formation of a small, hard, painful swelling at the bottom of the testicle. The overlying skin of the scrotum becomes red, hot and painful. Even when treated, gonococcal epididymitis leaves scar tissue which closes off the passage of sperm from the affected testicle. Since epididymitis is usually restricted to only one testicle, even such advanced gonococcal infection does not often lead to sterility; however, if the infection is left untreated, both testicles become involved and the man is left sterile.

Early gonococcal urethritis is painful, uncomfortable and obvious, which leads most men to seek early medical treatment. Modern antibiotics are rapidly effective and completely prevent the occurrence of complications or permanent effects such as sterility. Thus complications of gonorrhea in the male are extremely rare today and even when treatment is delayed, total recovery is the rule.

Early symptoms in the female

Fifty to 80% of women infected with gonorrhea do not notice any discomfort or symptoms for the first few weeks or even months of their disease. For many women, the first sign of their own infection is gonorrhea in a male sexual partner. Any man who has gonorrhea must immediately inform all his sexual partners of what is usually their common infection.

Gonorrheal infection in women usually begins in the cervix (opening of uterus). Within a few days of infection, pus is discharged through the cervical opening. Since the cervix lies high in the vagina, women cannot observe this early sign of infection. Some women notice a vaginal discharge which may be green or yellow-green and irritating to the vulva (external genital area). This discharge should not be confused with the normal, healthy vaginal discharge which is white or clear and non-irritating. A gonorrheal discharge is rarely heavy or even noticeable, unless some other infection is present at the same time. For unknown reasons, as many as 50% of women who have gonorrhea also have an infection of the vagina caused by the parasite, Trichomonas vaginalis. Trichomonal infection causes an abundant, frothy, watery, yellow-green discharge and severe genital itching. Trichomonal vaginitis is extremely common and occurs in many women who do not have gonorrhea.

Although the cervix is the main site of infection, the urethra and its opening, the meatus, are usually infected as well. Some women feel a burning pain on urination and occasionally, the lower lip of the meatus becomes red and swollen. A small amount of pus can accumulate within the urethra, although an observable urethral discharge is not common.

Some infected women or their lovers notice a distinctive, mushroom-like odour from the genital area. This odour can be confused with the normal yeast-like odour of the healthy vagina.

As gonorrheal infection of the cervix progresses, the vaginal discharge may become heavier. Some women feel a continuous low backache or vague pain in the lower abdomen.

Local complications in the female

Bartholin's glands: Gonorrhea bacteria enter the Bartholin's glands of 30-50% of women infected with gonorrhea. These are a pair of glands, each lying deep in the labia majora (large vaginal lips). During sexual intercourse each gland releases a small amount of mucus through a duct which opens onto the surface of the labia minora (small vaginal lips).

Most women have no symptoms of gonococcal invasion of the Bartholin's glands; however, in 1-2% of infected women, one gland becomes swollen and painful and releases a small amount of pus through its duct. An abscess forms within the gland which fills with pus and sticks out from the labia. The overlying skin becomes red and tender. Walking or sitting becomes extremely painful.

Anus and rectum: In women already infected with gonorrhea, heavy vaginal discharge or menstrual blood can carry the gonococcus from the cervix, out of the vagina and onto the anus. The bacteria can also be placed in the anus during anal intercourse with an infected man. Gonococcal infection of the rectum, called gonococcal proctitis, develops in 40-60% of women who have genital gonorrhea, but few have symptoms. Some women notice irritation or a feeling of moisture around the anus caused by an anal mucous discharge. In a few cases proctitis becomes acute, with burning pain in the anus and rectum, pain on moving the bowels and blood and pus in the feces.

Serious complications in the female

Gonorrheal Pelvic Inflammatory Disease (PID): Early gonorrhea does not produce noticeable symptoms in most women; therefore, treatment is often delayed. In 50% of women who remain untreated for more than 8-10 weeks, the bacteria rise into the uterus. The gonococcus does not survive easily on the endometrium (lining of the uterus) except during menstruation when the bacteria can multiply rapidly in the dead cells and discharged blood of the uterine lining. During menstruation, the infection can spread quickly up the sides of the uterus and into the fallopian tubes. Infection of the tubes is called salpingitis. The bacteria attack the inner walls of

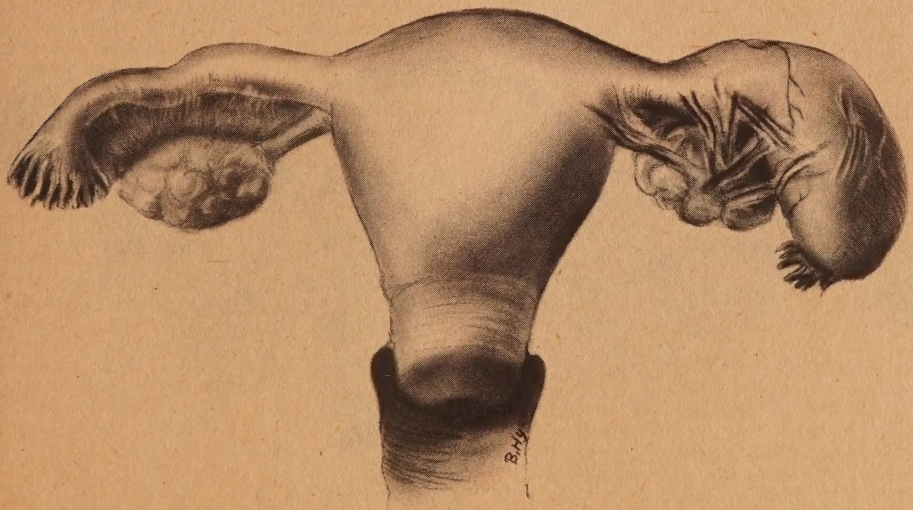
the fallopian tubes. Pus forms within the tubes and leaks out into the pelvic cavity and onto the ovaries. The affected tissues become swollen and inflamed (thus the name pelvic inflammatory disease). The open ends of the fallopian tubes (next to the ovaries) become blocked, pus collects and the tubes become greatly enlarged. Even after antibiotic treatment, in 20% to 30% of women who have salpingitis the fallopian tubes remain blocked by scar tissue. With her fallopian tubes blocked, the woman is left sterile.

Symptoms of gonorrheal salpingitis can be "acute" or "subacute". Acute salpingitis may begin with disruption of a menstrual period which may be longer or more painful than usual. These are symptoms of bacterial invasion of the uterine lining. One or two days after the menstrual period, the woman begins to feel pain in one or both sides of the lower abdomen. Pain becomes severe, the woman's temperature rises to about 102° F and she may experience nausea, vomiting and headache. Symptoms of acute salpingitis, especially the lower abdominal pain, are often so severe that many women go to a hospital emergency department, if one is available. Medical examination must be performed gently. The lower abdomen is tender to the touch and the abdominal muscles may cramp up. Vaginal examination, especially movement of the cervix from side to side, can be extremely painful and in some cases cannot be tolerated except under general anesthesia. Other diseases such as acute appendicitis and ectopic pregnancy (pregnancy developing outside the uterus, usually in a fallopian tube) can produce similar lower abdominal symptoms. Exploratory surgery is sometimes necessary, since unlike salpingitis which causes illness but not death, both appendicitis and ectopic pregnancy can be fatal.

In some women, infection of the fallopian tubes is sub-acute, that is, the symptoms are not as severe as in acute salpingitis. Sub-acute disease causes discomfort, a feeling of heaviness or a dull aching pain in the groin or lower abdomen. There may be pain during or after sexual intercourse and during vaginal examination, especially if the cervix is moved from side to side. Backache, a general feeling of illness and a low fever (99° F) may also be present. Menstruation is often irregular and painful and symptoms may become worse after each period. Pain and other symptoms may disappear temporarily after one or two days of rest in bed. Sub-acute salpingitis is difficult to diagnose since symptoms are mild and can be caused by other gynecological disorders.

Although antibiotic treatment given early in acute or sub-acute salpingitis often prevents permanent blockage of the fallopian tubes, treatment cannot repair whatever damage has already occurred. If the tubes are blocked the existing pus may not be able to escape. Normal secretions accumulate within the tubes which remain grossly enlarged. If the ovary was seriously affected, it too may never completely recover. In such cases, the production of hormones by the ovaries is disrupted causing abnormal uterine bleeding (heavy, prolonged periods and between period spotting). Another frequent result of gonorrheal salpingitis is the development of tough bands of tissue, called adhesions, which can link the uterus, tubes, ovaries, bladder and rectum to each other and/or to the abdominal walls. If there are many adhesions, the pelvic organs may be bound tightly out of shape.

In most women damage to the pelvic organs causes no symptoms; but some women experience chronic



Salpingitis

(uterus and tubes are seen from behind) The right tube is swollen with pus.

mild to moderate lower abdominal pain which may become worse during menstruation, sexual intercourse, fatigue or constipation. Persistence of such symptoms was once called "chronic gonorrheal salpingitis" which wrongly implies that the infection is continuing. In fact, the infection is cured but the pelvic organs never recover completely. A better name would be "gonorrheal pelvic residue". Some women who suffer from pelvic residue have repeated attacks of severe, lower abdominal pain which can only be relieved by the removal of the uterus and tubes (hysterectomy).

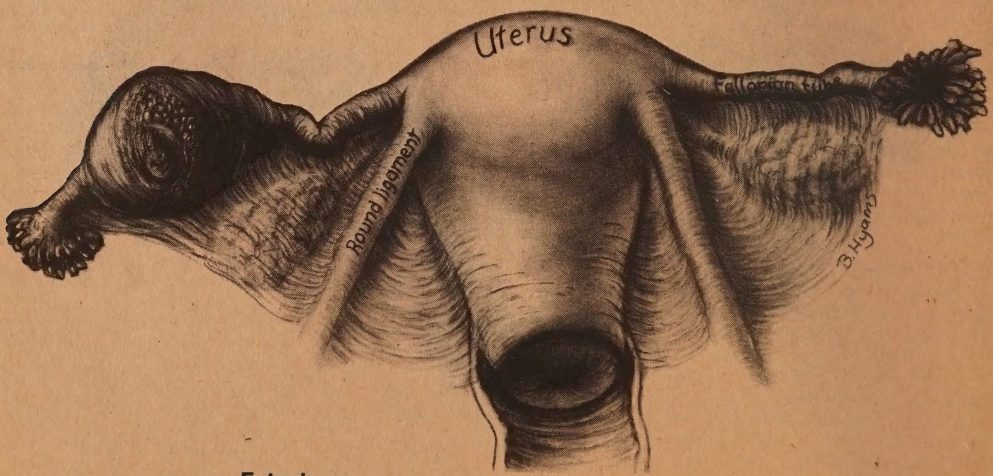
Before the introduction of antibiotic treatment, gonorrheal infection in women often spread into the fallopian tubes. Once penicillin became available gonococcal salpingitis became much less common; in the 1950's only 1-2% of women infected with gonorrhea developed a fallopian tube complication. Since the 1960's the incidence of salpingitis has been increasing and today, about 10% of women who have gonorrhea develop salpingitis. The primary cause of this increased incidence is the development of penicillin resistant forms of gonorrhea.

Ectopic pregnancy: By completely closing off both fallopian tubes with scar tissue, salpingitis sterilizes 20-30% of its victims. In addition, the tubes of some women who escape sterilization are narrowed or kinked instead of closed completely. An ovum (egg) may enter a damaged tube from the ovary and become fertilized. If part of the tube is too narrow the egg gets caught and develops in the fallopian tube instead of in the uterus. Such ectopic (out of place) pregnancy is dangerous since the walls of the tube are too thin to support the growth of the developing embryo. The first symptoms of ectopic pregnancy are the same as those of normal uterine pregnancy: missed period, breast swelling, morning nausea, changes in appetite etc. Within 2 weeks of the missed period there may be some spotting or a light menstrual-like flow which is often mistaken to be a normal but late period. Most women also feel some mild to moderate cramp-like pain on one side of the lower abdomen. As the embryo develops, it weakens and stretches the walls of the tube. After two to three months the tube bursts causing severe internal bleeding. The woman suddenly feels sharp stabbing pain in the lower abdomen which becomes bloated and very tender. Fainting, an urge to move the bowels, and a lower than normal temperature are also common symptoms. If the woman does not receive immediate medical care, including surgery to remove the ruptured tube and transfusions to replace the lost blood, she may go into shock and die.

Although abnormal implantation of an egg in the wall of a fallopian tube can be caused by many factors, such as an inherited deformity of the tube, a previous case of gonorrheal salpingitis is the most common cause of ectopic pregnancy. Women who have had salpingitis should know the early symptoms of tubal pregnancy and should seek immediate medical attention if such symptoms develop.

Birth control after salpingitis: Unless pregnancy is desired, women who have had salpingitis should use absolutely effective contraception such as the Pill or a combination of two less effective methods such as the condom and vaginal foam. Once the desired number of children is reached, sterilization should be considered.

The intrauterine contraceptive device (IUD) must not be used by women who have had salpingitis. The IUD does not prevent fertilization or the implantation of a fertilized egg in the fallopian tube; however, it usually prevents implantation in the uterus. In IUD users who have not had salpingitis the fertilized egg normally flows down the tube and dies in the uterus but in women whose tubes are narrowed or kinked by salpingitis the egg may become caught resulting in ectopic pregnancy.



Ectopic pregnancy
(front view of uterus and tubes) Fetus growing in right tube.

In the United States medical care is distributed according to ability to pay rather than according to human need. Working class or poor women may have to wait weeks for an appointment in a gynecology clinic of a "charity" hospital while the wives and daughters of the rich receive prompt careful treatment from private physicians. Early treatment of salpingitis prevents damage to the fallopian tubes and thus avoids sterilization and ectopic pregnancy. Among American working class, black and poor people, ectopic pregnancy occurs once every 80-100 pregnancies. Ectopics are far less common among middle and upper class whites, occurring once every 200-240 pregnancies.

Many countries to a greater or lesser degree have recognized the right of all human beings, regardless of class background, to receive adequate medical care. In Canada under the present "medicare" programs, most services are now free – a first step in equalizing the distribution of medical care to members of all classes. Discrimination against poor people still exists, but it is more subtle. Doctors do not keep offices in poor urban and rural areas. They do not speak the language of the immigrant population. Until free, prompt and dignified medical care is available to all people, gonorrhea and its late complications will never be eliminated.

Non-genital gonorrhea

Although gonorrhea is usually limited to the sexual organs, anus and rectum, it can affect other parts of the body. Non-genital infection can be "primary", that is, the first center of the bacteria's attack is non-genital; or "secondary", that is, the infection spreads from the sexual organs to a non-genital site.

Gonococcal pharyngitis and tonsillitis: The pharynx (throat cavity) and the two tonsils which lie on either side of the throat can be infected by the gonococcus. A person can catch gonococcal pharyngitis or tonsillitis by kissing or sucking the sexual organs of an infected partner. Transfer of gonorrhea bacteria by mouth-to-mouth kissing alone is probably impossible. Oral gonorrhea usually does not produce symptoms. In some cases, there is a sore throat and a low fever beginning a few days after the infecting oral-genital contact.

Oral gonorrhea is probably more common among those who practice "fellatio" (kissing and sucking a partner's penis) than among those who practice "cunnilingus" (similar loving attentions directed at a partner's vulva and vagina).

Before oral-genital intercourse both partners have an excellent opportunity to observe the other's genitals. If a thick, white, yellow or yellow-green discharge is seen coming from the penis or covering the vaginal walls and vulva, sexual intercourse should be delayed. The normal thin, clear mucous discharge released from the penis during sexual excitement in the healthy male should not be confused for gonococcal discharge. Similarly, a healthy woman's vagina is bathed in thin, clear or white secretions during excitement and intercourse. Unless one partner has a venereal disease, oral-genital intercourse can be enjoyed without fear of contracting infection.

Gonococcal arthritis-dermatitis: In about 1% of people who have an untreated gonorrheal infection for more than a few weeks, the gonorrhea bacteria break out of the boundaries of the genital organs and anal canal and enter the bloodstream. When any kind of bacteria is present in the blood the infected person is said to have septicemia. Gonococcal septicemia is more common in women and homosexual men who may have gonorrhea for a long time without any symptoms.

In 65-75% of gonococcal septicemia cases, spread of the bacteria causes symptoms such as fever (100° - 104°F), chills, loss of appetite, a general feeling of illness and pain in more than one joint. Pain or stiffness in a joint is called arthritis. The joints most commonly affected by gonorrhea are the knees, wrists, small joints of the fingers and hands, ankles and elbows, in that order. In 50% of cases a characteristic skin rash (dermatitis) appears, usually on the arms, hands, legs or feet and especially around the joints. At first, a pinpoint red spot appears which quickly becomes raised and then blister-like and bleeding. The center of the spot becomes pitted and dirty grey with an irregular violet border which is in turn surrounded by a red border. The rash is slightly painful but healing takes place within 3-4 days, leaving a faint dark spot. Within 4-5 days the bacteria in the blood die and symptoms disappear; however, relief from symptoms does not last long. Within a week or ten days after the beginning of the septicemia, several joints become swollen, red and extremely painful. Symptoms can concentrate in one joint, with pain so severe that movement is impossible. Antibiotic treatment must be given quickly to avoid permanent damage to the joints.

Other forms of disseminated gonorrhea: When gonorrhea bacteria are present in the bloodstream, they can invade organs such as the heart, the liver and the central nervous system. These complications are extremely rare: only a few cases have been reported in the past 20 years. They are mentioned only to emphasize that all cases of gonococcal septicemia must be treated immediately.

Gonococcal ophthalmalia neonatorum. (eye infection of the newborn): If a pregnant woman has gonorrhea when her child is born, bacteria may enter the baby's eyes as it passes through the mother's infected cervix. The gonococcus can also reach the vulnerable eyes of a young child from the fingers of an infected adult. Within 48 hours of birth one or both of the newborn's eyes becomes red, swollen and painful. Pus discharges from between the eyelids which may be swollen shut. If treatment is not started immediately, the infection destroys the eyes within a few days.

Gonococcal eye infection can also occur in adults, but it is rare. Since adult eyes are not as vulnerable to gonococcal attack, a rich source of live bacteria must be placed directly in the eye if infection is to develop. This can happen, for example, if an infected man touches his eyes with a finger immediately after examining himself, thus carrying some discharge from his penis to his eyes. Washing with soap and water after self-examination prevents this kind of bacterial spread.

In the last century, gonococcal ophthalmalia was a common cause of blindness in the newborn. In 1884, Karl Credé, a German obstetrician, observed that one or two drops of a 1% silver nitrate solution put in the eyes of newborn infants born to infected women prevents the development of this eye disease. Recently, some obstetricians have switched to penicillin drops which are believed to give better protection and which are less irritating to the baby's eyes than silver nitrate.

Although eye drops provide good protection against gonococcal ophthalmalia neonatorum, an even better method is the early diagnosis and adequate treatment of the infected mother before she gives birth. Recent studies in Canada and the U.S. have shown that 2.5% to 7.3% of pregnant women have gonorrhea, although most have no symptoms and are thus unaware of their infection. Pregnant women should be tested for gonorrhea several times during their pregnancy and at least twice during their 9th month. Since not all women are tested before they deliver, and since gonorrhea is not always detected by tests, **all children should receive either silver nitrate or penicillin eye drops immediately after birth.**

Examination and diagnosis

To "make a diagnosis" is to choose which disease is causing the symptoms. The diagnosis of any disease is based on the findings of a physical examination and the results of laboratory tests. In most cases, the doctor can make an educated guess, called a "clinical diagnosis" before the results of blood tests and cultures are available. In men, clinical diagnosis of gonorrhea is usually obvious and accurate, but in women, lab tests must be done before a definite diagnosis can be made.

Gonorrhea bacteria begin to die soon after antibiotic treatment is started. If a sample of discharge is not taken before treatment is started, it is impossible to know with certainty if the patient actually had gonorrhea. Antibiotic treatment for gonorrhea will not necessarily cure some of the diseases which cause similar symptoms. **Therefore, men and especially women should refuse to accept any treatment until a sample is taken for testing.** Except in uncertain cases, treatment can begin before the results of lab tests are known.

Some unsympathetic doctors impose their own moral values on patients who acquire a sexually transmitted disease, and may, as a form of "punishment", ridicule or even hurt the patient purposely. The patient should not tolerate such treatment. It is the patient's right to interrupt a physical examination that is unkind either physically or emotionally and to demand the presence of a "patient advocate" such as a friend or relative.

The diagnosis of gonorrhea is a serious matter, not to be made quickly or casually. The patient has the right to receive a thorough physical examination and the performance of all necessary lab tests; however, most VD clinics do not have the funds to perform thorough physical examinations on all patients. Physical examination is usually limited to the area between the knees and the navel. Patients are hurried in and out of the examining room with hardly a chance to speak to the doctor. This is bad medical practice and should be condemned. At the very least, the sexual organs must be thoroughly examined and all findings and diagnosis must be carefully explained to the patient.

Examination of the male

If the man is not circumcised, the foreskin is pulled back. The doctor checks the meatus for the thick, white or yellow discharge characteristic of gonorrhea and examines the rest of the penis for swelling or sores. Each testicle is squeezed gently to make sure that the disease has not spread to the epididymis. Unless the man has epididymitis, examination of the testicles should be painless. The doctor feels each side of the groin for enlarged or tender lymph glands. If the examination reveals any sign of complications, the man's temperature must be taken.

The doctor can usually decide if gonorrhea is present just by examining the man's genital area; however a sample of discharge or secretions from within the penis must be tested in the lab to confirm the diagnosis. To obtain a sample of secretions, the doctor holds the man's penis and inserts a cotton-tipped swab about half an inch into the urethra. This causes a moment of burning pain that is not difficult to tolerate. Inserting the swab more than half an inch causes more pain but does not improve the accuracy of the tests.

Men who have had oral-genital intercourse with an infected partner should ask that a swab be taken of their throat and tonsils. Homosexual men who have had anal intercourse should ask that a sample of anal secretions be tested. These are painlessly obtained by inserting a swab about 1 ½ inches into the anus.

Examination of the female for early gonorrhea

The doctor begins by examining the vulva for irritation, sores or discharge. Both sides of the groin are checked for enlarged or tender lymph glands. The doctor then separates the vaginal lips and inserts a speculum into the vagina. Since insertion of a cool speculum is uncomfortable, it should be kept in a bowl of warm water just before use. The water also serves as a lubricant which makes insertion of the warmed speculum easier. When gonorrhea is suspected, lubricant jelly should not be placed on the speculum, since it can contaminate samples of cervical discharge and interfere with lab tests.

With the speculum in place, the doctor can see the cervix. In many cases of early gonorrhea, a thick white discharge comes through the inflamed cervix. To obtain a sample of cervical secretions for lab tests, the doctor wipes away the surface discharge with a piece of cotton and inserts a cotton-tipped swab about an inch into the cervix. This procedure can be uncomfortable but is usually painless. The speculum is then removed. In 40-60% of women who have genital gonorrhea, the disease spreads to the anus and rectum. Therefore, a swab should be inserted in the anus to obtain anal secretions for testing.

A pelvic examination (an "internal") must be performed on all women believed to have gonorrhea. If the examining doctor does not do a pelvic, the woman should ask that it be performed. To do a pelvic the doctor inserts two fingers of a gloved hand deep into the vagina and with the fingers of the other hand, presses down on the lower abdomen. The doctor presses the walls of the vagina around the cervix and moves the cervix from side to side. If the fallopian tubes are infected, such procedures are painful, whereas if the tubes are healthy the internal examination causes discomfort but no real pain.

The woman's temperature should be taken. A fever (anything above 99.6° F) in a woman who has gonorrhea can indicate the presence of salpingitis or other complications.

Examination of women with symptoms of salpingitis

Insertion of a speculum or the performance of a pelvic examination in women who have symptoms of acute salpingitis (infection of the fallopian tubes) can cause unbearable pain. General anesthesia should be used if necessary and a narrow speculum should be inserted for only long enough to obtain a sample of cervical discharge.

Ectopic pregnancy (pregnancy developing outside the uterus) can cause symptoms similar to those of acute salpingitis. In cases where the diagnosis is uncertain, pelvic examination must not be performed except in an operating room with blood available for transfusion. Pelvic examination can rupture an ectopic pregnancy causing severe bleeding and death unless surgery is performed immediately.

Diagnosis of gonococcal ophthalmalia

A sample of discharge from the infected eye(s) should be obtained for immediate laboratory testing. Since gonococcal ophthalmalia can destroy an eye quickly, treatment cannot wait for lab test results. Treatment should begin immediately.

The discovery of gonococcal eye infection in a newborn should prompt an examination of the baby's mother.

Diagnosis of septicemia and arthritis-dermatitis

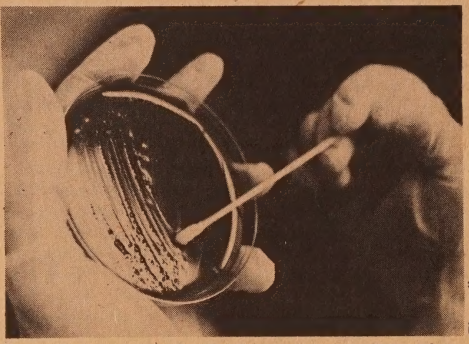
Patients who have symptoms of septicemia should be admitted to hospital. Blood samples should be tested carefully for the presence of the gonococcus. Samples of pus or fluid from a skin rash should also be tested.

Swollen joints should be aspirated to reduce pain and to obtain fluid for lab tests. A needle is inserted into the joint and fluid in the joint space is withdrawn.

Laboratory tests

The simplest test for gonorrhea is the microscopic examination of secretions taken from the patient. A cotton-tipped swab is inserted into the patient's penis, cervix, throat or anus and is wiped across a glass microscope slide. The slide is coated with a series of dyes developed in 1884 by H.C. Gram, a Danish bacteriologist. Any bacteria present are stained by the dyes. The gonococcus shows up as light pink, bean-shaped bacteria lying in pairs usually within a white blood cell. This test is not completely accurate in men and is almost useless in women. In about 15 % of men and 40 % to 60 % of women actually infected with gonorrhea, a Gram stain fails to reveal the gonococcus, thus giving a "false negative" result. Several bacteria other than the gonococcus are present in the vagina and anus of healthy women. These bacteria may appear very much like the gonococcus thus leading to a "false positive" result.

Bacteriological culture, which is the growth and identification of bacteria on a special nutrient jelly, is the method which has largely replaced the Gram stain as the basic lab test for gonorrhea. The jelly is prepared from a powdered mixture of high-protein materials such as agar (a sea weed) and human or animal blood, to which water and small amounts of four antibiotics must be added. These antibiotics (vancomycin, colistin, nystatin and trimethoprim), which do not injure the gonococcus, are added to the jelly to prevent the growth of any other kind of bacteria. The mixture is heated, poured into shallow glass dishes about 3 inches in diameter, and is allowed to cool. The prepared glass dishes, called culture plates, look as if they contain a thin layer of brown "jello".



Photocell

Spreading a patient's discharge on a culture plate.

A cotton tipped swab, carrying a small amount of the patient's secretions, is streaked across the surface of the nutrient jelly. The culture plate is placed immediately into an incubator (a closed container which maintains a constant temperature). For the best growth of the gonococcus, the temperature is set at 98° F and some carbon dioxide gas is pumped into the incubator. After 24-48 hours, any gonorrhea bacteria present in the patient's secretions have multiplied so many times that visible "colonies" of bacteria appear on the surface of the jelly. A colony of gonorrhea bacteria is a raised, round, greyish spot containing millions of bacteria. An experienced lab technician can usually determine if gonorrhea is present just from the appearance of the colonies. In most cases the many other bacteria normally present in healthy human sexual organs are prevented from growing by the four antibiotics which are part of the jelly. Colonies which appear are tested by the Gram stain and two chemical tests to make sure that the bacteria present are actually the gonococcus. If both chemical tests are positive, the patient definitely has gonorrhea.

Photocell

Two days later. Colonies of the gonococcus growing on the culture plate.

The successful growth and accurate identification of the gonococcus, as well as tests to determine the bacteria's sensitivity to antibiotics, are fairly complicated procedures requiring expensive equipment and well-trained lab technicians. Only large clinics, hospitals and public health departments can afford to undertake these procedures. Smaller clinics and private doctors can use "transport medium" to transfer samples taken from patients to a well-equipped lab. Transport medium is a jelly-like substance, placed at the bottom of a small bottle, in which the gonococcus can stay alive for 24-48 hours. The doctor pushes a swab carrying secretions from the patient into the jelly, closes the bottle, and sends it to the lab, usually by mail. In the lab the swab is taken out of the bottle and is streaked onto a culture plate. If the swab reaches the lab within 48 hours the chances are good that the gonococcus will survive and grow on the culture plate. An improved transport medium called "Transgrow", in which the gonococcus can survive 48-96 hours, has been developed recently. Transgrow will be a great aid in the diagnosis of patients in rural areas.

A blood test for gonorrhea, the gonococcal complement fixation test (GCFT) has been used on and off for more than 60 years with varying success. In its present form the GCFT detects only a minority of gonorrhea infections (that is, it has a high false negative rate). This test is often positive in healthy people who have once had gonorrhea but who were successfully treated, and is even positive in 5-10% of healthy people who never had the disease (that is, a high false positive rate). Even so, the GCFT is a useful test in certain clinical problems, such as suspected salpingitis.

Antibiotics

The word "antibiotic" comes from the term "antibiosis" – the battle between living things for the limited natural resources necessary for life, such as food and water. The battle is usually not violent or apparent: the silent unmoving soil contains thousands of different kinds of bacteria, fungi (molds) and other microscopic living things, all in constant competition. In order to survive, certain soil microorganisms developed the ability to secrete chemicals which are poisonous for their competitors but harmless for themselves. Some of these chemicals are also relatively harmless to human cells and can be injected into the human body to destroy disease-causing bacteria. When used to treat disease, these chemicals are called antibiotics.

The American drug industry

The discovery of antibiotics, which began in the 1940's, not only introduced a new era in medicine, but also provided the most important single source of revenue for the U.S. drug industry. In the 1950's and early 1960's the giants of the drug industry scrambled for patents on newly discovered antibiotics. A patent is a license granted by a government to the person or company which discovers a product. In the U.S., patents on drugs last for 17 years, during which time only the discoverer has the right to produce and sell the drug. Each new drug was sold for 50 to 100 times its cost of production. By 1956 the drug industry had become the most profitable industry in America (profit per capital investment), a position it has maintained ever since.

The history of tetracycline, a drug widely used in the treatment of gonorrhea, illustrates the effects of the patent monopoly system on the cost of antibiotics. In 1954 tetracycline was patented by Pfizer, one of the largest drug companies, and for several years it was sold at about 50¢ a pill. In 1963 the U.S. Trade Commission discovered that Pfizer and another giant drug company, Lederle, had conspired to help Pfizer obtain the patent by means of a fraudulent application to the U.S. Patents Office. Pfizer's patent was declared invalid and many of the smaller U.S. drug companies began to produce the drug. The price of tetracycline fell to about 5¢ a pill.

The patent monopoly system has also stimulated the unnecessary production of so-called "me-too drugs". As soon as a new drug is discovered and patented by one company, other companies perform experiments aimed at changing the chemical structure of the drug in some insignificant way. By adding a few carbon or hydrogen atoms to the original molecule, the competing company creats a "new" drug which can be patented. Such drugs rarely offer any advantage for treatment. For example, there are presently eight forms of tetracycline, none of which are more effective than simple tetracycline hydrochloride in the treatment of any infection; however, some of the more recently "discovered" tetracyclines more commonly cause side effects. Once a new form of a well known drug is patented, the manufacturing company bombards doctors with advertisement claims for the superiority of their product, much like automobile companies try to sell new cars every year on the basis of style changes. Dr. Richard Burack (Clinical Associate of Medicine and Affiliate in Pharmacology at the Harvard Medical School) describes the power of the drug companies in his book, **The New Handbook on Prescription Drugs:** "A couple of dozen giant pharmaceutical manufacturing corporations have all but wrested from the medical leadership responsibility for the continuing education of the busy doctor in drug prescribing... Information about comparative costs and authoritative views on comparative efficacy have been drowned out by a flood of exaggerated, misleading, even false advertisement claims..."

Treatment

In the face of misleading drug advertisements, the individual North American doctor cannot always be expected to know which drug provides the best and cheapest treatment for a particular disease. Doctors require assistance in this area, not only from government and medical educators, but also from patients. People should not be passive receivers of treatment for their own disease. On the basis of advice from the examining doctor, other dependable information, and individual preferences or fears (for example, fear of a needle), the patient should participate in the choice of what drug in what dosage is used for treatment.

In fact, most doctors do not even tell patients the name of the antibiotic they are to receive. This is dangerous medical practice. Antibiotics used in the treatment of gonorrhea can cause harm if improperly used and in some individuals, provoke serious allergic reactions which can occur hours or even days after the drug is taken. To deal with a drug reaction properly, it is necessary to know the name of the offending drug.

Patients should also know the name of the drug in case it does not cure the disease. Another drug to which the particular strain of gonococcus is more sensitive can then be tried. Patients cannot always rely on the doctor or clinic to remember which treatment was used first. In VD clinics, patients rarely see the same doctor more than once and records are often misplaced, lost or illegible.

Before accepting any form of treatment, all men and women should:
1. Request the examining doctor to explain his or her findings and diagnosis;
2. Request the doctor to identify the drug and dosage being prescribed;
3. Make a permanent, written record of the above information.

It is the patient's right to have the above information. If the doctor refuses to name the prescribed drug, the patient should refuse to accept it.

Since the first reports of penicillin resistant gonorrhea in the early 1950's, treatment of gonorrhea has been the subject of heated debate and much research. Scientists and doctors are still not agreed as to what drug and in what dosage provides the "best" treatment. On the basis of the research published since 1945, the editors of this publication have arrived at the following recommendations. As the resistance of the gonococcus continues to change, these recommendations will have to be revised.

Treatment of first choice: injected penicillin plus probenecid by mouth

Penicillin given by injection deep into the muscle of the buttocks ("shot in the ass") is still the best treatment for gonorrhea. From the muscle, the drug is absorbed by the bloodstream and distributed throughout the body. Penicillin does not stay in the body indefinitely; the kidneys excrete the drug into the urine. In order to achieve the largest possible amount of penicillin in the bood, a drug called probenecid is given by mouth before the injection. Probenecid temporarily reduces the rate of excretion of penicillin by the kidneys, so that a larger amount of penicillin remains in the blood for about 12 hours.

The aim of penicillin treatment for gonorrhea is to introduce a large amount of penicillin into the bloodstream for only 12 hours, after which the amount of the drug in the blood should fall quickly and disappear completely within 24 hours. This is best accomplished with a kind of penicillin called **procaine penicillin G.** (The procaine is a local anesthetic that reduces the pain of injection.)

Several other forms of penicillin have been used in the treatment of gonorrhea, including penicillin with aluminum monostearate (PAM) and benzathine penicillin. These kinds of penicillin are absorbed very slowly into the bloodstream and they are also excreted slowly by the kidneys. Therefore, an injection of PAM or benzathine penicillin causes a small amount of penicillin to be present in the blood for a long period of time (up to 2 weeks). This is good treatment for certain diseases which are very sensitive to penicillin (such as syphilis), but definitely the wrong treatment for gonorrhea. If the amount of penicillin put into the bloodstream is too low, penicillin resistant gonorrhea bacteria will not be killed. Also, small amounts of penicillin lingering in the blood further encourages the development of penicillin resistant gonorrhea bacteria. **People who have gonorrhea should refuse to accept treatment with penicillin with aluminum monostearate (PAM) or benzathine penicillin.**

Dosage and injection of penicillin for uncomplicated gonorrhea, including penicillin resistant gonorrhea: For the treatment of uncomplicated gonorrhea, both men and women should receive 1 gram of probenecid by mouth followed half an hour later by two injections, each of 2.4 million penicillin units, for a total of 4.8 million units. Each injection has the volume of 5 cubic centimeters which is contained in a syringe the same size normally used to take a blood sample.

The patient leans over the examining table or a chair, and tries to relax the muscles of the buttocks by bending the knees. One injection is placed into each side of the buttocks. The injection itself is not very painful and can be tolerated easily; however, the large amount of penicillin injected causes muscle soreness for two or three days. The soreness is reduced somewhat if, immediately after the injection, the muscles of the buttocks are massaged vigorously.

Even in Vietnam, where gonorrhea is extremely resistant to penicillin treatment, penicillin combined with probenecid cures more than 90% of cases. Symptoms such as discharge and pain on urination should disappear within 2-3 days after the injection.

Gonococcal proctitis: Gonorrheal infection of the rectum is more difficult to cure than gonorrhea limited to the sexual organs. Repeated injections are sometimes necessary.

Complications of gonorrhea: All patients who have gonococcal salpingitis, septicemia or arthritis-dermatitis must be admitted to hospital. These complications are best treated with crystalline sodium penicillin G injected intravenously, that is,

directly into a vein, in the dosage of 2.5 million units every 6 hours for 4 to 7 days.

Eye infection: All cases of gonococcal eye infection must be admitted to hospital and treated as emergencies. Babies should receive 50,000 units of crystalline sodium penicillin G per kilogram body weight (1 kg = 2.2 lb) and adults should receive 4.8 million units of procaine penicillin G plus 1 gram probenecid for several days. The pus should be wiped away from the infected eye(s) and eye drops containing 10,000 units of penicillin per milliliter of water should be placed in the eye every few minutes until the discharge stops.

Penicillin given by mouth: ampicillin

Natural penicillin G is destroyed by stomach acid and therefore cannot be given by mouth. Ampicillin is a semi-synthetic form of penicillin which is not destroyed by stomach acid.

Ampicillin is a good form of penicillin treatment for gonorrhea, especially for people who are afraid of injections. Recommended dosage is 3.5 grams of ampicillin combined with 1 gram of probenecid taken at the same time. Ampicillin should be swallowed on an empty stomach and eating should be delayed for 1 hour.

Side effects of penicillin treatment

Penicillin is the safest antibiotic used in the treatment of human infection. Tremendously large doses of penicillin have been given for long periods of time with no ill effects. Even so, treatment with penicillin carries certain risks.

About 5% of the North American population is allergic to penicillin. Allergic reactions to this drug are of two types: the common "delayed" and the very rare "immediate" reactions. A delayed reaction occurs 5 to 14 days after the drug is taken, usually appearing as a red skin rash or blister-like wheals. In some cases, fever and a general feeling of illness also occur. Such delayed reactions are usually harmless and disappear by themselves in a few days; nevertheless they must be reported immediately to the prescribing doctor.

An immediate reaction is much more serious. About 0.004% to 0.015% (4/100,000 to 15/100,000) of all people who receive penicillin injections experience "anaphylactic shock" which is a complete loss of blood pressure and blood movement within the body. This reaction can occur within seconds or as late as one hour after injection. It is almost unknown to occur with oral penicillin. In some cases warning symptoms appear first, such as rapid heart beat, dizziness, perspiration, tingling of the tongue and difficulty in breathing.

Anaphylactic shock is more common in people who have had a previous allergic reaction to penicillin, and somewhat more common among those who have other allergies such as hay fever or bronchial asthma.

It is important to understand just how rare anaphylactic shock really is. Most doctors never see a single case. In the past 20 years there has been only one death from anaphylactic shock among all the patients treated with penicillin in U.S. Public Health VD Clinics.

The following precautions must be taken whenever penicillin is given by injection:

1. All patients who have a history or suspected history of any kind of penicillin reaction or severe allergy such as hay fever or bronchial asthma should not receive penicillin for the treatment of gonorrhea.
2. Necessary equipment and drugs for the treatment of anaphylaxis must be kept as a separate kit in the treatment room.
3. Injections of penicillin must not be given by nurses or medical students unless a doctor is present in the treatment room.
4. All patients must be kept under observation for half an hour after receiving a penicillin injection.

Before accepting a penicillin injection, all men and women should specifically ask the doctor if an "anaphylactic kit" is immediately available. If the doctor refuses to answer, or if the answer is no, the patient should refuse to accept treatment and should report the incident to the Department of Health.

Treatment of second choice for gonorrhea: tetracycline

Contrary to some overenthusiastic reports in the medical literature, tetracycline is neither safer nor more effective than penicillin in the treatment of gonorrhea; however, it is the best drug to use for patients who must not receive penicillin because of allergic history.

Tetracycline hydrochloride is the simplest, safest and cheapest form of tetracycline. The following forms of tetracycline, whose brand names are shown in brackets, offer no advantage in the treatment of gonorrhea, are more likely to cause side effects, and should not be accepted by patients: chlortetracycline (Aureomycin), oxytetracycline (Tetramycin), tetracycline phosphate complex (Tetrex), demeclocycline (Declomycin), methacycline (Rondomycin), rolitetracycline (Syntetrin), doxycycline (Vibramycin) and minocycline (Minocin).

Tetracycline should be given orally since injection of this drug is excessively painful. The drug is absorbed from the stomach and small intestine and is then distributed throughout the body. Since absorption is reduced by food, especially milk and milk products, tetracycline should be taken on an empty stomach and eating should be delayed for one hour. Absorption is more seriously reduced by calcium, magnesium and aluminum. Several stomach antacids such as Milk of Magnesia and "Rolaids" contain these metals, and should not be taken during tetracycline treatment. (Sodium bicarbonate can be used instead).

For the treatment of uncomplicated gonorrhea, 1½ grams of tetracycline hydrochloride should be swallowed, followed by half a gram (500 milligrams) every 6 hours, for a total of 9 grams (4 days worth). This schedule should be followed very carefully. By taking half a gram every 6 hours, the amount of tetracycline in the blood remains high enough to kill gonorrhea bacteria. If a tablet is forgotten, it should be taken as soon as remembered, even if this means taking two pills at the same time. Symptoms such as discharge and pain on urination should disappear within 2-3 days of swallowing the first pills.

Many doctors are prescribing tetracycline instead

Photocell - Clara Gutsche

of penicillin as the treatment of first choice for uncomplicated gonorrhea. Widespread use of tetracycline has led to the development of tetracycline resistant forms of the gonococcus. At the moment, penicillin with probenecid if necessary is effective treatment for gonorrhea; tetracycline should be maintained as an effective second line of defence, except for those patients who have an allergic history. Therefore, men and women who do not have an allergic history should request penicillin treatment.

Side effects of tetracycline treatment

The most common side effect of tetracycline is digestive system irritation causing heart burn, abdominal discomfort, nausea, vomiting and diarrhea. These symptoms are usually harmless and disappear by themselves after the first few pills.

The normal intestine contains a great number of bacteria which aid digestion and prevent the growth of disease-causing organisms. Tetracycline temporarily kills off many of these normal intestinal bacteria. In most cases, these bacteria repopulate the intestines within a few days after tetracycline treatment ends; however, in a few cases, probably as often as anaphylactic shock occurs after penicillin, an intestinal "superinfection" develops. Such an infection is caused by the rapid overgrowth of bacteria or fungi that are not affected by tetracycline. Symptoms of intestinal superinfection include fever and severe diarrhea with liquid feces containing blood or shreds of membranes from the intestinal walls. Tetracycline induced superinfection can be fatal unless treatment is started immediately. Even though this side effect is rare, all cases of diarrhea in people taking tetracycline should be reported to a doctor.

An unknown percentage of the population is allergic to tetracycline. Such people can develop skin rash, burning eyes, a brown, black or swollen tongue, itching of the anus or vagina and in some cases, fever. Anaphylactic shock can also occur, although its frequency is unknown.

Tetracycline must not be taken by pregnant women. These women are particularly susceptible to tetracycline-induced liver damage which has, in some cases, caused death. Also, the drug is absorbed by the teeth and growing bones of the fetus within the uterus. This can cause a permanent greyish discolouration of the teeth and some reduction of bone growth.

Abnormal skin sensitivity to sunlight leading to severe sunburn occurs in some people taking tetracycline. This reaction is more common in southern areas and in summer; it is also more commonly associated with oxytetracycline, demeclocycline and doxycycline than with tetracycline hydrochloride.

In general, tetracycline is a safe antibiotic whose benefits far outweigh its risks. Nevertheless, it is a potent drug which must be used with the same degree of caution exercised when penicillin is injected.

Other drugs in the treatment of gonorrhea

If a woman is both allergic to penicillin and pregnant, neither penicillin nor tetracycline can be used safely. Also, there are a few people who are allergic to both of these drugs. In such cases, the

best drug to use in the treatment of gonorrhea is **erythromycin stearate (Erythrocin).**

Dosage is the same as for tetracycline: 1½ grams followed by 500 milligrams every 6 hours for a total of 9 grams. The absorption of erythromycin stearate is not seriously affected by the presence of food in the stomach.

Erythromycin appears to be an extremely safe antibiotic. Allergic reactions such as skin rash are rare. Stomach upset and vomiting sometimes occur. Intestinal superinfection can develop, but less frequently than with tetracycline.

Spectinomycin: Spectinomycin hydrochloride (Trobicin) is a new antibiotic recently approved by the U.S. Food and Drug Administration for treatment of gonorrhea in men and non-pregnant women.

The recommended dosage is 2 grams given by injection. Higher doses, up to 4 grams, have been used particularly in women, but they do not provide better cure rates. Two grams of spectinomycin is about as effective as currently recommended penicillin or tetracycline treatment; however, it is about four times more expensive.

Spectinomycin is chemically related to streptomycin and kanamycin (see below) which can cause kidney and hearing damage. Since spectinomycin is a new drug which has not been studied extensively, it is not known whether or not it will cause similarly serious side effects. **At the moment, this drug should be used with caution. Spectinomycin (Trobicin) is absolutely not a drug of first choice for the treatment of gonorrhea.**

People who are allergic to penicillin or tetracycline are not necessarily allergic to spectinomycin; therefore, this new drug can be used in allergic patients who are not cured by erythromycin. The safety of spectinomycin for pregnant women or the fetus has not been determined.

Drugs which should not be used in the treatment of gonorrhea

People who have gonorrhea should refuse to accept the following drugs for the treatment of their disease.

Streptomycin and kanamycin: The usefulness of these two drugs is severely limited by their high incidence of serious side effects, including deafness and kidney damage. They have no place in the treatment of gonorrhea.

Chloramphenicol: Before much was known about this drug, it was widely promoted by its manufacturer, Parke, Davis, Co. and for several years millions of North Americans received chloramphenicol for various infections. It was then discovered that chloramphenicol can cause a rapidly fatal form of aplastic anemia. Sales of this drug, which had been the source of an estimated 1/3 of Parke, Davis' profits, fell dramatically in 1967, but not before several hundred people had died from its side effects. Doctors should remember the chloramphenicol story before prescribing newly discovered drugs such as spectinomycin for the treatment of infections which can be cured by older, cheaper and better known medications.

Hetacillin: Hetacillin is a useless "me-too drug" that is converted by the body to ampicillin. Hetacillin has no therapeutic advantage over ampicillin.

Follow up examination and tests

Penicillin and tetracycline in recommended dosages are 90% to 95% effective in curing gonorrhea. Erythromycin is less effective. This means that out of 100 people treated for gonorrhea, about 10 are not cured and require further antibiotic treatment. People who are not cured do not necessarily have symptoms of their continuing infection; however, they can develop complications and they can give their infection to sexual partners. Therefore, **it is essential that all men and women who have gonorrhea return to a doctor for "follow up" examinations and culture tests after receiving treatment**. People should not consider themselves cured until three separate culture tests are negative.

The first follow up test should be performed within one week of receiving treatment. The second and third examinations can be performed during the following week. Vaginal, anal and oral-genital intercourse should be delayed until three culture tests are negative. If any of the follow up tests reveal that the infection has not been cured, re-treatment with a higher dose or another antibiotic is necessary.

Prevention of gonorrhea infection

The condom, a thin rubber or animal membrane sheath worn over the penis during sexual intercourse, has long been used for the prevention of VD. The condom does not provide absolute protection. **People who suspect that they have gonorrhea should seek medical care and should delay sexual intercourse. If it is absolutely not possible to wait, the male partner should use a condom.**

Research is being conducted with vaginal foams, similar to contraceptive foams, for the prevention of gonorrhea.

North American scientists are performing experiments with a gonorrhea vaccine. A vaccine is an injection of weakened or dead disease-causing bacteria or viruses into a healthy person. Such injured organisms cannot cause disease, but they are strong enough to provoke the body to produce "antibodies". If a vaccinated person is exposed to the disease itself, these antibodies prevent the development of infection. Vaccines exist for many diseases, including smallpox, polio and measles. Unfortunately, results of research with a gonorrhea vaccine are not encouraging and an effective one will not be available for some time.

The elimination of gonorrhea today

The existing North American health care system cannot handle the current gonorrhea epidemic. While huge sums of money are spent on elaborate technology for exotic surgery such as heart transplantation, the working class and the poor are left without even the basics of medical care. Millions of people are not having regular physical check-ups and many women do not receive adequate gynecological or prenatal care.

We offer the following recommendations towards the elimination of gonorrhea from our midst. These recommendations can be transformed into reality only if men and women ally with sympathetic doctors, women's liberation groups, community health clinics and other organizations to demand that government

and the health care system answer to our human needs.

1. The health of North Americans is being endangered by tropical and antibiotic resistant diseases imported by U.S. soldiers returning from Southeast Asia. U.S. military occupation has created rampant prostitution and drug addiction in these countries. A necessary precondition to the elimination of gonorrhea both in North America and S.E. Asia is the complete withdrawal of all U.S. troops. Returning U.S. soldiers deserve the benefit of thorough physical examination and treatment for infectious diseases.
2. Massive educational programs should be started to teach people about sexuality, birth control and venereal disease. Men and women should learn to deal with gonorrhea as a disease like any other, and not as punishment for sexual behavior.
3. All women should have the benefit of voluntary, free, mass-screening programs for the early detection of gynecological diseases which may not cause symptoms, including cervical cancer and gonorrhea. Sexually active women should have a test for gonorrhea at least once a year. Women should have a test for gonorrhea after each "casual" sexual encounter; that is, after making love with an unknown or only slightly known male partner.

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Summary of gonorrhea

Cause: **a bacteria called the gonococcus**

Transmission: **by vaginal, anal or oral-genital sexual intercourse; it is impossible to catch gonorrhea from toilet seats, towels, doorknobs or any other inanimate object.**

Symptoms in men: **3 to 5 days (sometimes longer) after sexual intercourse with an infected partner, there is a white or yellow, creamy, thick discharge seeping out of the opening of the penis. There is pain and burning during urination.**

Symptoms in women: **80% of infected women do not have symptoms. Some women have a green or yellow - green vaginal discharge.**

Complications in men and women: **untreated infection can eventually cause sterility**

Treatment of first choice: **an injection of penicillin into the muscle of the buttocks**

Treatment for people allergic to penicillin: **tetracycline tablets by mouth.**

If you are treated for gonorrhea, it is your personal responsibility to inform all of your sexual partners immediately so that they can be examined and, if necessary, treated.

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syphilis

He who knows syphilis knows medicine.
- Sir William Osler

When Osler made this statement in the last century, he was referring primarily to the wide range of physical symptoms and complications associated with syphilis. In Osler's time there was no effective treatment for syphilis and the untreated disease would slowly progress to attack the heart, nervous system, liver and other organs of its victims' bodies. To truly understand syphilis in the days before penicillin treatment, a doctor had to have a good knowledge of the many organ systems that the disease could affect.

Today, treatment for syphilis is quick, simple and effective. The late complications which were so common in Osler's time are now rare and exceptional. Nevertheless, Osler's statement has taken on a new and even more significant meaning. In the light of new knowledge about the origins and spread of this disease, syphilis is now recognized as one of the clearest examples of how all human diseases are affected by people's physical and social environment.

The development of syphilis

It was once believed that syphilis was introduced to Europe by Christopher Columbus and his crew of 44 men who returned to Spain in the year 1493 after visiting the island of Haiti, part of the "New World". According to this "Columbian theory", Columbus and his crew became infected with syphilis after having sexual intercourse with the women of Haiti.

In 1495, King Charles VIII of France besieged the city of Naples. The opposing armies were both composed largely of mercenary soldiers, some of whom had come to Naples from port cities of Spain. A strange new disease struck the armies at Naples. The French called it the "disease of Naples", but in the city of Naples it was called the "French disease". On the basis of descriptions written by historians of that era, we can be almost certain that the disease was syphilis. The poor health of both sides brought a rapid end to the siege of Naples, and the armies dispersed throughout Europe.

In the early 1500's Europe was struck by an epidemic of syphilis which was then called the "Great Pox". ("Smallpox", another disease that was epidemic in Europe, was considered a less serious condition.) The Great Pox appeared as far away as Canton, China by the year 1505. Thus, according to the "Columbian theory", syphilis was spread throughout the "Old World" within 12 years of its introduction to Spain.

There have long been critics of this "Columbian theory". No matter how energetic Columbus and his crew were on their return to Spain, it is difficult to believe that they could have initiated an epidemic

that swept through the whole of the known world. Also, there is strong evidence that syphilis existed in the "Old World" long before Columbus. There are descriptions of a disease that may have been syphilis in ancient Chinese, Indian, Hebrew and Greek writings. Prehistoric human bones and mummified Egyptian bodies have been found which bear the scars of syphilis-like disease.

Despite the accumulation over many years of a large body of such evidence seriously questioning the "Columbian theory", it was not until recently that the origin of syphilis was clarified. The current "evolutionary theory" suggests that syphilis is not a disease in itself, but rather a form of a disease called treponematosis. The other forms of this disease are called yaws, endemic syphilis and pinta. They are all caused by the same microscopic organism, the Treponema pallidum, but their symptoms are different in different environments and societies.

Treponematosis first developed as yaws, which afflicted prehistoric man living in the rain forests of tropical Africa. The disease probably evolved as man developed from the great apes. Today, a yaws-like disease can still be found in African monkeys and apes.

Yaws is a childhood disease which mainly affects the skin and is passed from person to person by touch contact. Until the development of penicillin and the start of mass treatment campaigns by the World Health Organization in the 1950's, most Africans living in tropical parts of Africa developed yaws by the age of 15. Yaws is still common in some tropical areas.

As prehistoric man wandered from tropical Africa north towards the Sahara, his environment changed dramatically. From the hot, constantly moist environment of the rain forest, man entered the relatively dry and somewhat cooler areas of northern Africa and Asia. Human skin was no longer constantly moist and more clothing was worn. Faced with such changes, Treponema pallidum, which depends on moisture for its survival, "retreated" to the underarms, mouth, nostrils, crotch and anus which retain moisture. In this way, yaws developed into a new form of treponematosis today called endemic syphilis but known in different parts of the world by many native names. In Central and South America yaws developed into a special form of endemic syphilis called pinta.

About 10,000 years ago the first villages appeared, probably in the Tigris-Euphrates valley of ancient Egypt. Life became more stable and less dangerous. Population increased quickly. In the crowded and unsanitary environment of primitive villages, endemic syphilis also increased quickly. Until recent mass treatment campaigns, endemic syphilis affected most if not all children born in villages of the North African deserts, the plains of Asia and the steppes of Eastern Europe.

From the villages evolved the towns and cities. Cities existed in Egypt by 4000 B.C., in China by 2000 B.C. and in Greece by 800 B.C. In the cities, large numbers of people were concentrated in small areas. If the cities were to survive, they had to develop standards of individual and public sanitation. Sewage systems, clean water aqueducts and personal washing all came into existence. For the Treponema pallidum, which is a weak and fragile organism. these measures posed a significant challenge. Even the most minimal sanitation measures were enough to break the spread of endemic syphilis among children.

In response to this challenge, Treponema pallidum retreated again, this time into parts of the body that remain moist but that are also occasionally exposed to the outside world and new potential human hosts. The sexual organs and the anus became the new home of Treponema pallidum and venereal syphilis, spread only by sexual intercourse, came into existence.

This process of the evolution of treponematosis from yaws to endemic syphilis and finally to venereal syphilis occurred in different ways, at different times and in different countries through the ages. The slave trade was one of the most important means by which yaws was transferred to cooler and dryer climates. Historians calculate that in all, 100,000 million men, women and children were taken from the shores of their native Africa to serve the Egyptians, Greeks, Romans, Persians, Spanish, Portugese, British and finally the Americans. Many of the slaves carried yaws to the countries of their oppressors, where endemic syphilis and eventually venereal syphilis developed.

There are many present day examples of rapid change of one form of treponematosis to another. For example, in South Africa, which is a relatively dry country, endemic syphilis is still common among the colonized black people. Black men, infected with the small, dry patches typical of endemic syphilis, who enter the tremendously hot and humid gold mines of the Transvaal, return to the surface with the large, moist sores typical of yaws.

It is now quite certain that venereal syphilis was not introduced to the "Old World" by Columbus and his crew. The syphilis epidemic that struck Europe in the 1500's had nothing to do with the early European exploration of North and South America. The Treponema pallidum has been tremendously successful at evolving alongside man and at taking advantage of new situations. In the early 1500's, social and environmental conditions may have changed in some important way that greatly aided the organism.

Venereal syphilis is a disease that has been created by the development of human society. It is clear that we cannot eliminate this disease by a simple attack on the organism. Treponema pallidum has managed to survive every previous attack for tens of thousands of years, including the development in this century of penicillin. The only way that we will be able to eliminate syphilis from our midst is to change those social conditions that permit it to exist.

In the societies of Europe and North America, venereal syphilis survives because of public ignorance about the disease and because of inadequate health care. Mass education programs should be initiated to teach people about human sexual behavior and the sexually transmitted diseases. The medical profession must share its knowledge, so that all men and women have precise information about the signs, symptoms, complications and treatment of syphilis. Every person should have an annual physical examination, including blood tests for syphilis. Until good

medical care is available free of any charge for all people, syphilis will never be eliminated completely.

The incidence of syphilis in North America

In the past few years statements about the "VD explosion" or the "VD epidemic" have appeared in newspapers, radio and television. Such statements incorrectly imply that all sexually transmitted diseases are common and increasing in incidence. In fact, gonorrhea is the only venereal disease that has become much more common over the past decade. In contrast, the incidence of syphilis has remained fairly stable.

It has been estimated that in 1971, 100,000 cases of primary and secondary (that is, infectious) syphilis occurred in North America. In the same year, about 2,000,000 North Americans had gonorrhea. That syphilis is not as common as gonorrhea does not negate its seriousness for, unlike gonorrhea, which normally causes only uncomfortable symptoms and in some cases sterility, syphilis can kill. The final elimination of syphilis should be a high priority.

Treponema pallidum

Treponema pallidum (or T. pallidum), the cause of treponematosis in man (yaws, endemic syphilis, pinta and venereal syphilis) was discovered in 1905 by two German scientists, Fritz Schaudinn and Erich Hoffman. T.pallidum is a member of the Treponemata family of microscopic organisms. Several harmless kinds of Treponemata are found on the skin and in the mouth and vagina of healthy human beings.

T.pallidum is a thin, delicate, corkscrew-like organism. It has 6 to 14 spirals and is about as long as a red blood cell is wide. It moves steadily, in a sense gracefully, by rotating like the propeller of a ship.

Transmission

Warmth and moisture are essential for the survival of Treponema pallidum. In the environment of North America and Europe, the organism dies very quickly once outside of the human body. Soap and water will kill T.pallidum immediately if present on the skin. Therefore, it is almost impossible to catch syphilis in any way other than vaginal, anal or oral-genital sexual intercourse.

During sexual intercourse, T.pallidum travels from an infected person to his or her sexual partner. T.pallidum can enter right through intact skin of the sexual organs. Wearing a condom does not protect a man against syphilis, since the organisms can enter at the junction of the penis and the rest of the body which the condom does not cover. Within a few hours of entry, the syphilis organisms reach the bloodstream and are carried to all parts of the body.

The stages of syphilis and their symptoms

Primary syphilis: About 3 to 4 weeks (as early as 10 days or as long as 3 months) after sexual intercourse with an infected person, the primary sore of syphilis, called the chancre, appears at the spot where T.pallidum invaded the body. In men, the chancre usually appears on the glans (fleshy tip of the penis) or in the groove between the glans and the rest of the penis. The chancre can also appear in or around the meatus (opening of the penis), on the shaft of the penis or on the scrotum.

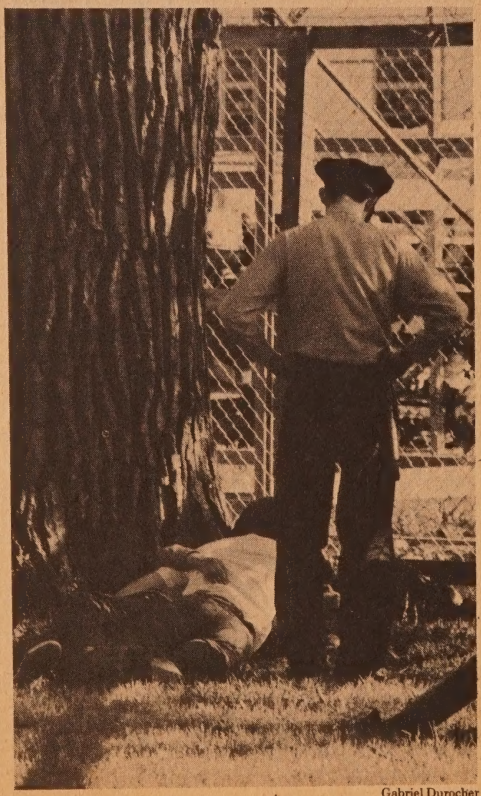
In people who have anal intercourse, the chancre may appear in or around the anus.

In women who have vaginal intercourse, the syphilitic chancre usually appears on the cervix or inner vaginal walls. The chancre may also appear on the vaginal lips, the clitoris or the urinary meatus.

In women, the chancre of primary syphilis is often not visible. Therefore, many women are not aware that they have primary syphilis unless informed by a male sexual partner. In men, the chancre of primary syphilis is usually obvious. All men who have primary syphilis must immediately inform all sexual partners of their common infection.

In men and women who have oral-genital intercourse with an infected person, a chancre may appear on the lips, tongue or tonsils. Chancres occasionally develop on other parts of the body, usually at the site of a minor injury such as a bite or scratch acquired in the passion of lovemaking.

In most cases only one chancre appears, but occasionally, multiple chancres occur. Chancres may appear on two parts of the genitals that touch each other such as the two vaginal lips or the underside of the penis and the scrotum.



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When the chancre first develops, it is a dull red bump about the size of a pea. The surface of the bump soon breaks down and the chancre becomes a rounded, dull red, open sore which may be covered by a yellow or grey crusty scab. The chancre is painless and does not bleed easily. In about 50% of cases, the chancre is surrounded by a thin pink border. The edges of the chancre are often raised and hard, like the edges of a button. The hardness may spread to the base of the chancre and eventually to the surrounding tissue, making the whole area feel hard and rubbery.

Within a few days of the appearance of the chancre on the genitals, there may be a hard or elastic, painless swelling of the lymph glands in the groin (junction between the upper thighs and the lowest part of the abdomen). This is more common in men than in women.

If left untreated, the chancre heals by itself within 1 to 5 weeks after its appearance. A thin, faint scar may remain, but it is usually not visible. For a while, the infected person has no symptoms; however, the disease continues to develop within the body and the person can pass the infection on to sexual partners.

Secondary syphilis: If primary syphilis is not treated, the disease progresses to its secondary stage. About 6 weeks (as early as 2 weeks or as late as 6 months) after the appearance of the primary chancre, a generalized skin rash develops. The appearance of this rash is extremely variable; the only factor common to most cases is that syphilitic rashes do not itch or hurt. The following descriptions of the skin rash do not apply to all cases.

The rash may begin as small, round, rose-pink spots on the shoulders, upper arms, chest, back and abdomen. The spots may be quite difficult to see. After a few weeks (in some cases, only a few days) the spots become brownish-coloured and then fade away.

More commonly, the rash is seen as raised bumps of different sizes on the chest, back, arms, legs, face, palms and soles. The rash on the palms and soles is of particular significance, since not many rashes affect these areas. On white skin, the bumps first appear cherry or ham-coloured and then become coppery or brown. On black skin the bumps are greyish-blue. Each bump is rubbery hard. When appearing on the face, the rash may form in rings. When on the scalp, each bump may have a hair growing from its center. Syphilitic rashes on the scalp can cause hair loss (a slang expression for syphilis is "hair cut"). On the palms and soles, the rash remains flattened; the individual spots do not rise above the surface. The tough surface skin on the palms and soles may flake off, giving the bumps a shiny surface.

In warm, moist areas of the body, such as the vaginal lips, anus, and between the buttocks, the syphilitic rash may form "condylomata lata". These are moist, broad-based, flat-topped, large rounded growths. They are dull red or pink with a greyish white surface that eventually breaks down revealing a dull red surface oozing clear fluid. This fluid contains large numbers of Treponema pallidum and is extremely contagious to other people.

The syphilitic rash may affect the mucous membrane (soft, moist skin) of the lips, cheeks, tongue, tonsils, throat and vocal cords. In these areas the rash appears as greyish-white patches surrounded by a dull red border. These patches are called "mucous patches". In the throat, mucous patches can cause a mild sore throat and a husky voice.

In many cases of secondary syphilis, the lymph glands in the armpits and neck may become enlarged and rubbery (but not painful).

In about 25% of cases of secondary syphilis there is a general feeling of ill health caused by: frequent headaches, which may become worse at night; loss of appetite; nausea; constipation; pain in the long bones, muscles or joints; and a low, persisting fever.

In most cases, at least one obvious symptom (usually the skin rash) appears during the secondary stage of syphilis. Symptoms are usually distressing enough to cause most people to seek medical attention if it is available. Modern antibiotic treatment is quickly effective and the infected person recovers without any permanent effects. Today, cases of syphilis beyond the secondary stage are very rare in North America.

Even without treatment, all symptoms of secondary syphilis disappear within 2 to 6 weeks (sometimes longer) of their first appearance. This can mislead people into believing that they have recovered spontaneously. In fact, the disease then enters a more dangerous stage.

Latent syphilis: If secondary syphilis is not treated, the disease progresses to a stage where there are no symptoms for many years. This stage is called latent or "hidden" syphilis.

About 25% of untreated people experience a temporary relapse of primary and secondary symptoms during the first two years of latent syphilis. In such cases, a chancre may reappear at its original site on the genitals and the rash of secondary syphilis may redevelop. After a few weeks these symptoms disappear and the disease resumes its completely hidden nature.

After about one year of latent syphilis, the person is no longer infectious to other people, except in the case of a pregnant woman to her unborn child (congenital syphilis).

About 2/3 of untreated people live the rest of their lives without any further disturbance from their disease; however, the remaining third develop the complications of late syphilis.

Late (tertiary) syphilis: Today, late syphilis is extremely rare in North America. There are three major kinds of late syphilis:

1. Benign late syphilis: may affect the skin, muscles, digestive organs, liver, lungs, eyes and endocrine glands. The characteristic effect of benign late syphilis is the development of a gumma on or in the affected organ. A gumma is a large, destructive ulcer. If treated promptly the gumma heals and in most cases, the patient recovers completely. Benign late syphilis develops in about 17% of untreated people 3 to 7 years after the beginning of their infection.

2. Cardiovascular late syphilis: injures the heart and the major blood vessels. This form of late syphilis appears 10 to 40 years after infection in 10% of untreated people. Cardiovascular syphilis often leads to death.

3. Neurosyphilis: affects the spinal cord and the brain, causing paralysis and insanity. Neurosyphilis develops 10 to 20 years after the beginning of infection in about 8% of untreated cases, and is usually fatal.

Syphilis in pregnancy and congenital syphilis

During pregnancy, primary chancres on the vaginal lips may become enlarged; however, most other symptoms of syphilis are less severe in pregnant than in non-pregnant women. The skin rash of secondary syphilis may be hardly visible during pregnancy. This improvement of symptoms during pregnancy is dangerous, for an infected woman may remain unaware of her disease and pass it on to her unborn child. Children who are infected in this way are said to have congenital (from birth) syphilis.

The syphilis organisms travel from the infected mother to the unborn child via the small blood vessels of the placenta and the umbilical cord. Before the placenta is well developed (that is, before 16-18 weeks of pregnancy), the organisms cannot travel through it to reach the infant. If a syphilis infection in a pregnant woman is detected and treated before the fourth month of pregnancy, the child never develops the disease.

The more recent the infection in the mother, the more likely is the child to be infected and the more severe are its symptoms. Thus, almost all children born to women who have untreated primary or secondary syphilis develop the disease and many die either before or shortly after birth; however, infants born to women in the latent stage may either escape infection altogether or develop typical syphilis that is not immediately life-threatening.

All pregnant women must have at least three blood tests for syphilis during their pregnancy. The first test should be taken before the fourth month of pregnancy, the second test during the sixth month and the third test during the ninth month.

Physical examination and diagnosis

The diagnosis of syphilis is not easy. Syphilis has been called the "great mimic" - it can produce symptoms similar or identical to dozens of other diseases. In the diagnosis of syphilis the doctor cannot depend on the patient's symptoms alone, but must also carefully consider the patient's personal medical history, the presence or absence of syphilis in the patient's recent sexual partner(s) and the results of laboratory tests.

Syphilis is a disease that can affect all parts of the body; therefore, an examination limited to the sexual organs is not sufficient. The doctor should examine the patient's eyes, throat, heart, lungs and abdomen. The patient's temperature, pulse and blood pressure should be recorded. Unfortunately, in many Public Health and hospital VD clinics, patients are not given thorough medical examinations. Patients should request that a complete physical be performed.

All people who develop a sore on the sexual organs should have an examination for syphilis. Patients should not delay in seeking medical examination, since a primary chancre can disappear within a few days, after which diagnosis may be more difficult. Patients should not put any cream or ointment on the sore until it has been examined by a doctor. Almost any chemical will kill the syphilis organisms near the surface of the chancre making microscopic examination of fluid taken from the chancre inaccurate.

For the physical examination, the patient should take off all clothing so that the doctor can see the entire skin surface. The doctor examines the genital sore (if present) and searches for any sign of the secondary skin rash. In women, a speculum (instrument used to hold vaginal walls apart) is inserted into the vagina and the inner vaginal walls and cervix are checked for sores.

People who have had anal intercourse with an infected partner should request that the inner walls of the anus be checked for the presence of a chancre. To do this, the doctor inserts one lubricated finger of a surgically gloved hand into the anus and feels the anal walls. This procedure is uncomfortable but should not be painful.

If a sore is present on the sexual organs, fluid from within the sore should be examined under a

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microscope. Since T.pallidum is particularly thin, a special kind of microscope called the darkground or darkfield microscope must be used. When viewed under such a microscope, the syphilis organisms appear bright on a dark background.

The darkfield microscopic examination is an excellent test for primary syphilis, but it is not easy to perform. Many organisms can give the appearance of Treponema pallidum. Therefore, the darkfield microscopic examination should be performed only by highly trained personnel. Only large Public Health and hospital VD clinics have the staff and facilities to perform accurate darkfield examinations. If properly protected, T.pallidum can survive in fluid from a chancre for several days, long enough for a sample to be transferred from a small clinic or private doctor's office to a well-equipped lab.

To obtain fluid for testing, the genital sore is thoroughly rinsed off with salt water and is then gently rubbed with a pad of sterile gauze until thin, clear fluid oozes from its surface. This procedure may be painful for a moment and should be performed gently.

If testing facilities are immediately available, the fluid from the chancre is put onto a glass slide and viewed under the darkfield microscope while the patient waits in the clinic for the result. If testing facilities are not at hand, fluid from the chancre is drawn up into a very thin glass tube called a capillary tube, which is then sealed at both ends with wax and mailed in a special container to a Public Health Department laboratory where the darkfield examination is performed. All Provincial Public Health labs in Canada and State labs in the U.S. provide this service to doctors free of charge. Tests for syphilis do not cost the patient anything.

Blood tests for syphilis

Blood tests for syphilis are used in two ways: as part of diagnosis in individual cases and for the mass testing of millions of people. All men and women believed to have syphilis are given a blood test whether or not a darkfield examination is positive. This serves to confirm the diagnosis and is especially important when symptoms are confusing or absent altogether. In addition, tests for syphilis are performed routinely on all people who are: entering any North American hospital; obtaining a marriage license; giving blood; entering the army; and on all women who are pregnant. Mass testing detects many cases of untreated syphilis in people who are unaware of their infection and has led to a significant reduction in the incidence of syphilis in North America. Approximately 50 million blood tests for syphilis are performed each year in the U.S. and Canada.

All blood tests for syphilis work by detecting "antibodies" in a sample of blood taken from the vein of the person being tested. An antibody is a chemical produced by certain parts of the body, (especially the lymph glands), when the body is invaded by disease-causing organisms. Antibody molecules circulate in the bloodstream and become attached to the invading bacteria or viruses making them more susceptible to destruction by other parts of the body's self-defence mechanism, such as the white blood cells. The body produces specific antibodies for each kind of invading organism. Since yaws, endemic syphilis, pinta and venereal syphilis are all caused by the same organism, blood tests cannot tell these diseases apart.

Treponema pallidum as seen with the darkfield microscope. Magnification 2000 X.

The first blood test for syphilis was developed in 1906 by a German scientist, August von Wasserman. Since that time more than 200 different blood tests for syphilis have been developed. Only a few of these remain in common use. The most widely used tests are described below:

VDRL: These letters stand for the Venereal Disease Research Laboratory of the U.S. Public Health Department, where this test was developed. The VDRL is relatively accurate, cheap and fairly easy to perform; it has replaced many of the older tests and is now considered the basic blood test for syphilis.

Although the VDRL is a good test, it has its limitations. It cannot give accurate results before the disease has been present for least 4 to 6 weeks, and even then, it is positive in not more than 76% of cases of primary syphilis; in the other 24%, the test gives a "false negative" result. Thus, a negative VDRL is not absolute proof that a person does not have primary syphilis. On the other hand, the VDRL can detect 100% of cases of secondary syphilis.

The VDRL is also not sufficiently "specific". This means that it will be positive in certain people who do not have syphilis but who do have some condition to which the test reacts. A "false positive" VDRL occurs in some people who have recently had measles, chicken-pox, mononucleosis and infectious hepatitis; it also occurs in some people recently vaccinated for smallpox and in some pregnant women. Such false positives are temporary and the VDRL becomes negative a few months after the infection, vaccination or pregnancy. More long lasting false

positive VDRLs occur in some people who have diseases such as systemic lupus erythematosus (SLE) and rheumatoid arthritis. False positives are very common in drug addicts; about 60% of positive tests in heroin users are false positives. Consistently false positive VDRLs also occur in some healthy people for no apparent reason.

FTA-ABS: The fluorescent treponemal antibody absorption test (FTA-ABS) is one of the tests used in problem cases, such as suspected false negative and false positive VDRLs. The FTA-ABS is more accurate than the VDRL; however, it is also more difficult to perform and requires expensive equipment. The FTA-ABS is positive in about 86% of cases of primary syphilis, and becomes positive earlier in the course of the disease than does the VDRL. Thus, a person exposed to syphilis less than 4 weeks previously should request that a FTA-ABS test be done instead of a VDRL. The FTA-ABS is also more "specific" than the VDRL - false positives are less common.

TPI: The Treponema pallidum immobilization test (TPI) produces very few, if any, false positive results. Therefore, it is used to determine with certainty whether or not a person has syphilis in cases where symptoms and medical history are confusing. The TPI is an expensive and difficult test to perform and its use is limited to special problem cases.

Spinal fluid examination

In latent syphilis it is necessary to make sure that the disease is not continuing quietly in the central nervous system. A sample of the fluid that surrounds the spinal cord is obtained for testing by a procedure called a lumbar puncture, in which a needle is inserted between the bones of the spine.

Treatment

Syphilis can be cured by a variety of antibiotics. The precautions that must be taken when using antibiotics as well as the side effects of these drugs are described in detail in the gonorrhea chapter.

Treatment of first choice: penicillin

Penicillin given by injection into the muscle of the buttocks is the most effective antibiotic for the treatment of syphilis. Penicillin is used in all cases, unless the infected person is allergic to the drug. Syphilis is a dangerous disease and a fear of injections is not sufficient reason to use another drug which can be taken by mouth. People who are afraid of needles deserve understanding and sympathetic assistance. Injections of penicillin are uncomfortable but take only a brief moment.

Even small amounts of penicillin will kill Treponema pallidum; however, it may take several days for all of the syphilis organisms in an infected person's body to die. Therefore, the aim of penicillin treatment for syphilis is to maintain a constant, but not necessarily very large, amount of penicillin in the infected person's blood for at least 2 weeks. This is best accomplished by injections of the slowly excreted, long-lasting forms of penicillin such as benzathine penicillin or procaine penicillin G with aluminum monostearate (PAM).

For the treatment of primary and secondary syphilis with benzathine penicillin, the recommended dosage is 2.4 million units given as two injections of 1.2 million units, one injection placed into each buttock. Each injection has the volume of about a teaspoon. Using PAM, the recommended dosage is 4.8 million units given as 2.4 million units on one day followed by two injections of 1.2 million units given 3 days apart.

Many doctors use larger amounts of penicillin for the treatment of primary and secondary syphilis, arguing that extra penicillin is harmless but that uncured syphilis can be deadly. This argument has merit and patients should accept larger doses of penicillin if it is the opinion of the doctor that they are necessary.

Latent, late and congenital syphilis are treated with the same forms of penicillin, but in larger dosages.

Treatment for penicillin-allergic people: tetracycline

Patients who are allergic to penicillin should be treated with tetracycline hydrochloride. For the treatment of primary and secondary syphilis, recommended dosage is 3/4 of a gram taken by mouth every 6 hours for 10 days, giving a total of 30 grams.

Tetracycline must not be taken by pregnant women since the drug can injure the fetus.

Treatment for pregnant, penicillin-allergic women: erythromycin

In cases where a woman is both penicillin-allergic and pregnant, erythromycin stearate (Erythrocin) is the best drug to use. For the treatment of primary or secondary syphilis, recommended dosage is 3/4 of a gram taken by mouth every 6 hours for 15 days, giving a total of 45 grams.

Reactions to treatment of syphilis

Soon after the introduction of any antibiotic into the bloodstream of a person infected with syphilis, large numbers of the syphilis organisms die suddenly. In dying the organisms break open and release their contents into the blood. This can cause several uncomfortable, but temporary symptoms. Within 12 hours after the start of treatment, the patient may develop a fever of 101° to 102° F. If a chancre is present, it may become swollen and enlarged. Such a reaction usually lasts only a few hours.

Follow-up examinations and tests

All men and women who are treated for syphilis must have several medical examinations and blood tests after treatment is over to make sure that their disease is completely cured. Patients who are treated for primary and secondary syphilis should be examined one month after receiving treatment and then once every three months for one year. **People who are being treated for syphilis should not have sexual intercourse for one month after receiving treatment.** At each post-treatment examination, a sample of blood is taken for a VDRL test. The VDRL gradually becomes negative 6 to 12 months after successful treatment of primary syphilis and 12 to 18 months after a case of secondary syphilis is cured.

Follow up examinations after treatment for latent and late syphilis must be more extensive.

non-gonococcal urethritis

Non-gonococcal urethritis (NGU) is any inflammation of the male urethra (tube from bladder to meatus at tip of penis) that is not caused by a gonorrhea infection. Since a specific cause of NGU has still not been discovered, the disease is also called non-specific urethritis (NSU). "Non-specific" is medical jargon meaning "cause unknown". Since NGU often develops in a man who has recently been cured of gonorrhea, it is also called post-gonococcal urethritis (PGU).

Non-gonococcal infection of the male urethra is as common as gonorrhea itself. The incidence of NGU has increased rapidly over the past 15 years. NGU is not known to occur in women.

Cause or causes

Non-gonococcal urethritis is probably not one disease, but several, all of which have such similar symptoms that so far it has been impossible to tell them apart. Some of the possible causes of NGU are:

T-strain mycoplasmas: Mycoplasmas are a kind of microscopic organism similar to bacteria in nature but closer to viruses in size. The T-strain mycoplasmas were discovered in 1954 by a U.S. Navy scientist, Dr. Maurice Shepard, who named them "T" for the "tiny" colonies they produce when grown in the laboratory on nutrient jelly. In 1961, working at the Subic Bay Naval Base next to the Phillipine city of Olongapo, Shepard discovered a high incidence of T-strain mycoplasmas in the urethras of U.S. sailors who had NGU. Some of the registered prostitutes who serve U.S. military personnel in Olongapo were subjected to examinations by the U.S. Navy Venereal Disease Research Team. A similarly high incidence of T-strain mycoplasmas were found in the vaginas of these prostitutes. Other scientists working in Europe and North America have found T-strain mycoplasmas in the urethras of civilian men who have NGU.

Even though T-strain mycoplasmas have been found in men who have NGU, the organisms do not necessarily cause the disease. T-strain mycoplasmas have been found in healthy men who show no evidence whatsoever of NGU. It is possible that the organisms can cause disease only in men who are particularly susceptible to urethritis.

Chlamydia: These are another group of microscopic organisms only slightly larger than viruses. Chlamydia are not well understood but it is suspected that they are the cause of some cases of NGU.

Allergy: It has been suggested that some men become allergic to the vaginal secretions of their sexual partners and that in such cases, the urethral discharge of NGU is an allergic reaction.

Trichomonads: NGU can result from infection of the male urethra by Trichomonas vaginalis, a vaginal parasite that infects many women. Trichomonads do not survive easily in the male urethra and such infections are not common.

Chemical irritation: In some men, the meatus and urethra are irritated by certain soaps, deodorant sprays, dyes from clothing or vaginal contraceptives used by sexual partners.

Factors that increase susceptibility to NGU

Gonorrhea: A gonorrhea infection injures the male urethra and, even with antibiotic treatment, it takes some time for the urethra to recover completely. While the urethra is still weakened it is particularly susceptible to NGU.

Fatigue: Some men experience a relapse of NGU each time they become excessively tired. Other factors which weaken the body's resistance to infection, such as pollution, poor diet, lack of exercise, emotional upset, etc. can make some men particularly susceptible to NGU.

Transmission

Since the cause or causes of NGU have not been clearly established, the manner in which the disease is spread from person to person is also not understood. It is by no means certain that NGU is always transmitted by sexual intercourse; however, the disease is rare in men who have never had any sexual intercourse. Although women do not develop NGU, it is possible that they can carry the disease-causing organism(s) in their vaginas without experiencing symptoms themselves.

Symptoms

Men who have NGU experience a thin, usually clear discharge from the penis. The discharge may be continuous, but in many cases it is present only in the morning before urinating. In some cases the discharge is thick, white and creamy, just like a gonococcal discharge. Most men who have NGU feel mild to moderate pain when urinating.

Diagnosis

The diagnosis of NGU is often missed because many doctors assume that any discharge from the penis is caused by gonorrhea. Some doctors do not even bother to take samples of the discharge for lab tests. This is bad medical practice, since gonorrhea is the cause of only 50% of all urethral discharge cases in the male - most of the other cases are NGU. Sloppy diagnosis of gonorrhea is not imposed on all men equally; many doctors believe that poor people and black people are more "promiscuous" and more frequently have gonorrhea than members of the white middle class, the class from which most North American doctors have come.

It is usually possible to tell the difference between gonorrhea and NGU if the patient is examined carefully and if his personal history of sexual exposure is considered. Men who have a urethral discharge have a right to such careful treatment and should accept nothing less. The following factors should be considered in all cases of urethral discharge:

1. Appearance of discharge: In NGU the discharge is usually thin, clear or somewhat white. In gonorrhea the discharge is typically thick, white and creamy.

2. Pain on urination: Pain or burning during urination is usually mild to moderate in NGU; in gonorrhea, it is usually severe and difficult to tolerate.

3. History of sexual exposure: Symptoms of gonorrhea usually appear 3 to 5 days after the infecting sexual intercourse; the time period between infection and symptoms in NGU is not known and probably varies considerably. NGU can occur in the male partner of a monogamous couple, that is, a couple whose members have sexual intercourse only with each other.

4. Examination of sexual partners: Examination of recent sexual partner(s) of a man who has gonorrhea will reveal that at least one partner has the disease as well; however, the partner(s) of a man who has NGU usually have no sign of any infection.

Laboratory tests: All men who have a urethral discharge should be tested for gonorrhea. Men should refuse to accept any treatment until a sample of the discharge is taken for lab testing.

Treatment

Many cases of NGU disappear within 14 days without treatment; however, there are some antibiotics which can, for unknown reasons, eliminate symptoms and cure the disease more quickly. Tetracycline hydrochloride is the drug of first choice for the treatment of NGU. Recommended dosage is half a gram (500 milligrams) taken by mouth every 6 hours for the first 5 days, followed by a quarter of a gram (250 milligrams) every 6 hours for another 5 days.

Men who are allergic to tetracycline should receive erythromycin stearate (Erythrocin) in the same dosage.

Most other antibiotics, including all forms of penicillin, are of no value in the treatment of NGU.

Follow-up examination and tests

Men who have NGU should be examined once a week until the discharge stops. At each examination, a sample of any discharge present should be taken for lab tests.

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vaginitis

Vaginitis, the most common disease of the female genital organs, is an inflammation of the vagina. Several microscopic organisms can infect the female vagina and cause symptoms such as severe genital itching and vaginal discharge. Although vaginitis is not dangerous, it can be very uncomfortable and all women who have vaginitis deserve immediate medical attention.

The common kinds of vaginitis have very similar symptoms; nevertheless, it is usually possible to tell them apart by examining a drop of vaginal secretions under a microscope. Many doctors do not perform this simple procedure, and the diagnosis and treatment of vaginitis is often limited to crude guess work. Such sloppy medical practice leads to low cure rates and chronic, long lasting vaginitis from which many women suffer unnecessarily. Almost every case of vaginitis can be cured effectively if properly chosen, adequate treatment is given. Women should not accept any form of treatment for vaginitis unless the diagnosis is confirmed by microscopic examination of the vaginal secretions. All doctors who treat women should have a microscope immediately available.

Trichomonas vaginalis vaginitis

The Trichomonas vaginalis, also called the trichomonad, is a microscopic, pear-shaped, single-celled organism, slightly larger than a white blood cell. Projecting from one end of the trichomonad are four thin strands which whip back and forth giving the trichomonad a rapid, jerky movement.

Transmission

At room temperature, trichomonads can survive for several hours on moist objects. A woman can become infected if her vagina comes into close contact with a toilet seat, towel, washcloth, etc. that has been used by an infected woman.

Sexual transmission is probably more common. The trichomonad can survive under the foreskin in uncircumcised men, usually without causing any symptoms. In some men, the trichomonads enter the penis, swim up the urethra and reach the prostate gland. (The prostate, which lies just under the bladder, produces some of the secretions which make up male semen.) When an infected man ejaculates ("comes") into a woman's vagina, the trichomonads are carried along in the semen.

Trichomonads can also be transmitted during homosexual lovemaking between two women, if the vagina of an infected woman is brought into close contact with her lover's vagina.

Symptoms

Although some women with trichomonal vaginitis have few symptoms and may even be unaware of their disease, most infected women become very uncomfortable because of an abundant vaginal discharge. The discharge is frothy, white or yellow and has an unpleasant smell. It irritates the vagina and

vulva which become red, itchy and painful. The symptoms can become so severe that it becomes impossible to carry on with normal daily life and immediate effective treatment is necessary.

Trichomonal infection in the male is usually without symptoms and is apparently harmless. The organisms do not survive easily in the male sexual organs and often die after a short time, even without treatment. Some infected men notice a slight discharge and a tickling sensation in the penis.

Complications

Long term trichomonal vaginitis that persists for months or years can permanently damage the cells of the cervix, making them more susceptible to cancer. Prompt treatment prevents permanent cervical damage.

Diagnosis

Women should not douche before coming for an examination. Douching changes the appearance of the vaginal discharge and temporarily reduces the number of trichomonads in the vagina, thus making accurate diagnosis difficult. Washing of the external vaginal area does not have this effect.

Since an infected woman's vagina is quite tender, vaginal examination must be performed gently. The speculum (instrument used to hold vaginal walls apart) should be lubricated with warm water. With the speculum in place, the doctor can often see bright red, slightly raised spots on the inner vaginal walls and cervix.

Diagnosis is confirmed by examining a drop of vaginal discharge under a microscope. If the woman has a trichomonal infection, many trichomonads are seen swimming rapidly in the secretions.

Diagnosis in the male is not as easy since not as many trichomonads are present in an infected man's secretions. If the man is uncircumcised, a bit of secretion from under the foreskin should be examined microscopically. In addition, secretions from within the urethra should be examined. These can be obtained by inserting a cotton-tipped swab about half an inch into the man's penis. This causes a moment of pain that can be tolerated easily.

Treatment

The microscopic trichomonad which causes trichomonal vaginitis was discovered in 1836 and over the years many different medicines were used to treat this infection, but with little success. Vaginal suppositories of arsenic were somewhat effective, but not entirely safe. Finally, in 1959 French scientists discovered a drug called metronidazole (brand name Flagyl) which proved to be very effective in killing trichomonads and eliminating the uncomfortable symptoms of trichomonal vaginitis. Currently recommended treatment is a single 2000 mg dose (eight 250 mg tablets) taken by mouth all at once. Symptoms disappear quickly and local treatment such as douching is unnecessary. For one week after being treated with metronidazole, a woman should not have sexual intercourse, or she should make sure that her male sexual partner(s) uses a condom.

A single 2000 mg dose of metronidazole cures

Photocell - Clara Gutsche

about 90% of trichomonal vaginitis cases; however, if a woman's sexual partner is carrying trichomonads in his penis or prostate gland, the woman can be re-infected right after she has been cured. It is usually difficult or impossible to find trichomonads in an infected man; therefore, an infected woman's male sexual partner(s) should also receive 2000 mg of metronidazole. A female sexual partner of an infected woman should be tested and need not receive treatment unless trichomonads are found.

In stubborn cases which do not respond to repeated metronidazole treatment, diagnosis should be reconfirmed by the microscopic examination of secretions from the woman and her sexual partner(s). Most cases of "incurable" trichomonal infections are not trichomonal at all. Metronidazole will not cure any form of vaginitis other than trichomonal vaginitis.

Metronidazole has been given to many pregnant women without apparent effect on the fetus. Even so, the drug should be avoided during the first three months of pregnancy. Metronidazole is excreted in breast milk. Since the effect of the drug on newborn babies is not known, it should not be taken by mothers who are breast-feeding.

As alternative treatment for these women who should not have metronidazole in their bloodstream, vaginal suppositories of metronidazole are available. One suppository should be placed high in the vagina each night, before going to sleep. Although some of the drug enters the bloodstream through the walls of the vagina, most of it remains in the vagina where it cannot affect a fetus or newborn who is breast-feeding. Metronidazole suppositories by themselves often do not cure trichomonal vaginitis, but they keep the uncomfortable symptoms in check until the woman can take the oral tablets.

There are many vaginal creams, jellies, suppositories, douching solutions etc. marketed for the treatment of vaginitis. None of these local medications are effective treatment for trichomonal vaginitis, and should not be used.

Side effects

After taking metronidazole, some people develop nausea which soon goes away; however, alcohol can make such nausea much worse and a person should take **no alcoholic drinks for 3 days after the drug is taken.**

Metronidazole has been taken by millions of women since 1960 and no dangerous side effects have been discovered. In 1972, 2 scientists reported that mice of a certain breed (which are very susceptible to cancer), fed a high dosage of metronidazole all their lives, developed an increased incidence of lung and other cancers (J Nat Cancer Inst 48:721, 1972). Another scientific study published a year later (J Nat Cancer Inst 51:403, 1973) showed that rats fed a similarly high dose of metronidazole for their whole lives did not have an increased incidence of cancer.

In 1974 using the first scientific study as evidence, but avoiding mention of the second study, a Ralph Nader consumer protection group called for the removal of metronidazole from the market because of the risk of cancer. Since then, there has been much publicity about the supposed "cancer risk" of metronidazole. After review of all of the available medical information we believe that there is no evidence that metronidazole can cause cancer in humans. It is the rare person who ever needs metronidazole more than 2 or 3 times and only small doses are used. Also, humans are much less susceptible to the development of cancer than the mice given metronidazole in the first study. Trichomonal vaginitis can be a very uncomfortable disease which if left untreated damages the cervix. There is no other cure for trichomonal vaginitis presently available and metronidazole should be used.

Candida albicans vaginitis

Candida albicans is a common microscopic yeast-like fungus. It is present on the skin and in the mouth, vagina and large intestine of many, if not most, healthy people. Why this organism sometimes causes disease is not completely understood.

The following factors make a woman more susceptible to candida vaginitis:

Pregnancy: Changes of hormones in pregnancy cause the cells of the vagina to store a greater than normal amount of sugar. This provides a good growth situation for candida.

Diabetes: Women who have diabetes also have excess sugar stored in vaginal cells.

Birth control pills: Women who take high dose estrogen birth control pills, that is, brands of the Pill that contain more than .05 milligrams of estrogen per pill, are more susceptible to candida vaginitis. Recent medical reports indicate that low dose pills do not have this effect.

Antibiotic treatment: Treatment of bacterial infections with antibiotics such as tetracycline have no effect on candida albicans but greatly reduce the number of other microscopic organisms which are normally present in the vagina. With competition reduced, candida can multiply rapidly.

Lowered resistance: Anything that lowers the body's natural resistance to disease, such as fatigue, poor diet, emotional upset, pollution, cigarette smoking, etc. can make a woman more susceptible to candida vaginitis.

Transmission

Most women carry candida albicans in their vaginas at some time in their lives, although active vaginitis does not always result. The organisms can reach the vagina in several ways, one of which is spread from the woman's own anus. Candida can travel from the anus along the surface of a menstrual pad or when the woman wipes herself after moving her bowels.

Transmission by sexual intercourse sometimes occurs. Candida albicans can survive under the foreskin of an uncircumcised man. An infected woman's sexual partner can develop a candida infection of the throat (called "thrush") after oral-genital intercourse.

Symptoms

The most significant symptom of candida vaginitis is intense vaginal and vulval itching which may be severe enough to interfere with sleep and other normal activities. The vagina becomes red and dry. Sexual intercourse is painful. The vaginal discharge is not heavy; it is thick, white, curdy and resembles cream cheese.

Diagnosis

With the speculum in place, the doctor can see cheesy white patches stuck on to the inner walls of the vagina. Microscopic examination of material taken from a candida patch will reveal the organism.

Treatment

The best treatment for candida vaginitis is an antibiotic called nystatin (Mycostatin) in the form of vaginal tablets. One or two vaginal tablets should be inserted high in the vagina each night before going to sleep. Symptoms usually disappear within 2 days, but treatment should be continued for at least 4 weeks and should not be interrupted during menstruation. This treatment can be messy since the medication can leak out of the vagina and stain sheets and underclothing yellow. If this becomes a problem, a towel should be placed on the sheets.

If symptoms persist, vaginal tablets should be continued for another month; in addition, nystatin should be taken by mouth, in the dosage of one 500,000 unit tablet three times a day for several days. Vaginal tablets and oral tablets are not the same and should not be mixed up. Nystatin is not absorbed from the digestive system; the purpose of giving it by mouth is to reduce the amount of candida albicans in the large intestine, thus reducing the chances of reinfection from the woman's own anus.

During pregnancy, complete cure is often impossible to achieve; however, the continued use of nystatin vaginal tablets keeps symptoms under control. After delivery, the infection can be cured more easily.

Non-pregnant women who have repeated candida infections should have a test for diabetes.

If genital itching is severe, some relief can be obtained by sitting in a tub of cool water. Cool, wet compresses applied over the vulva can also be helpful.

urinary tract infections

A urinary tract infection is an infection, usually caused by bacteria, of any part of the system that produces, collects and excretes urine. The urinary system includes the kidneys, ureters, bladder, and urethra.

The most common urinary tract infection is cystitis, infection of the bladder. Between puberty and about the age of 45, cystitis occurs almost exclusively in women.

Cause

A variety of bacteria can infect the bladder, but most commonly the organism responsible is Escherichia coli, usually referred to as E. coli. This bacteria is present in the large intestine of all healthy men and women. Why E.coli causes infection in some women and not in others is not completely understood; however, certain factors are known to increase a woman's susceptibility to such an infection.

The female urinary meatus lies just under the clitoris and is continuously rubbed during sexual intercourse. If intercourse is particularly vigorous, or is repeated frequently over a short period of time, the meatus may be injured slightly. E.coli can infect the weakened meatus and then slowly work its way up the short female urethra towards the bladder. Thus cystitis is common in women who have recently started a new sexual relationship and are frequently and actively enjoying the loving attentions of the new-found partner. Years ago such cystitis was called "honeymoon cystitis". This term has become somewhat less relevant in recent years.

In men, the urethra is comparatively long and bacteria rarely manage to reach the bladder.

Symptoms

The symptoms of cystitis can develop quite suddenly. There is burning pain on urination which may become so severe that urination is difficult to tolerate. Even so, there is a frequent desire to urinate. The urine is hazy and in some cases, tinged red with blood from the walls of the infected bladder. Some women experience pain in the lower abdomen, low backache and fever. The symptoms of cystitis require prompt medical attention.

Complications

If cystitis is left untreated, the bacteria can spread from the bladder to attack one or both kidneys. Kidney infection is a serious danger to health and many cases must be treated in hospital. Prompt treatment for cystitis prevents this complication.

Diagnosis

The diagnosis of cystitis is usually made on the basis of symptoms; however, a sample of urine must be tested in a laboratory to determine with certainty the kind of bacteria that is causing the infection. The woman is asked to give a urine sample by the "midstream" technique (as described in the anatomy chapter).

Treatment

While waiting for the results of lab tests which take a day or two to perform, most doctors begin treatment with a sulfa drug such as sulfadiazine, sulfisoxazole (Gantrisin) or sulfamethoxazole (Gantanol). The dosage usually prescribed is 1 gram

(2 tablets of ½ gram each) taken by mouth every 6 hours for 10 days to 2 weeks. Symptoms usually disappear soon after the start of treatment. Some brands of sulfa drugs contain a kind of red dye which is excreted by the kidneys into the urine and which reduces the burning pain of urination. This dye makes the urine bright red-orange.

If the results of lab tests confirm that E.coli is the bacteria involved, sulfa treatment is usually successful. For other bacteria, antibiotics such as ampicillin (a form of penicillin) are prescribed.

Sulfa drugs must be used with caution by black people. From 10% to 14% of American black people have an inherited deficiency of a blood enzyme called glucose-6-phosphate-dehydrogenase (G6PD). In such people, sulfa drugs cause a serious form of hemolytic anemia - a disease in which the red blood cells burst and die. Sulfa-induced hemolytic anemia can be fatal. A simple test can detect the G6PD deficiency. **Black men and women should refuse to accept sulfa drugs unless a test for G6PD deficiency has been performed.** For women with G6PD deficiency, ampicillin is the antibiotic of first choice for most cases of cystitis.

In some cases of cystitis, complete cure is difficult to achieve. Symptoms go away for a while but then reappear several weeks or months after treatment. Women who have repeated bladder infections should have an X-ray of the urinary tract to make sure that the bladder and kidneys are functioning properly.

Some women who have chronic, long-lasting urinary tract infections have to take low dosages of certain antibiotics for long periods of time to achieve a lasting cure.

Betha Gutsche

lympho-granuloma venereum

In 1913 three French doctors, Nicolas, Durand and Favre, recognized that lymphogranuloma venereum (LGV) is a separate venereal disease. Until quite recently, LGV inspired little Western scientific attention since it was very rare in Europe and North America; however, after the French and then the Americans invaded parts of tropical Southeast Asia, LGV became more common in the Western World. As Major A.J. Abrams (MC, USA) states in a recent medical article, "The incidence of lymphogranuloma venereum in the United States is increasing. A large segment of the increase is due to dissemination by American soldiers returning from Southeast Asia." LGV is still not very common in North America. At the most, a few thousand cases occur each year (contrasted to the two million cases of gonorrhea).

The LGV virus-bacteria

The microscopic organism that causes LGV is still not completely understood. It appears to be a large virus that has certain characteristics typical of bacteria.

Transmission

LGV is usually passed from one person to another by vaginal, anal and sometimes oral-genital sexual intercourse. It is possible that the disease can also be spread by close physical contact other than sexual intercourse. Non-sexual spread of LGV is probably more common in tropical climates where fewer clothes are worn and human skin is constantly moist with sweat. The extent to which the disease is contagious, that is, the chances of developing LGV after a single act of sexual intercourse with an infected person, is not known. LGV is probably less contagious than syphilis or gonorrhea.

Disease process and symptoms

Lymphogranuloma venereum is a disease of the lymphatic system. This system is made up of lymph fluid, lymph vessels and lymph nodes (commonly called lymph glands). Lymph fluid is similar to blood except that it contains very few red blood cells and a much larger number of white blood cells. The lymph vessels run more or less parallel to the blood vessels and empty into large veins in the upper chest. Along the lymph vessels are concentrations of lymph tissue which make up the lymph nodes. The lymph nodes are concentrated in certain areas such as the armpits, neck and groin.

When the body is invaded by disease-causing organisms such as bacteria, the white blood cells attack and consume (literally swallow) the invaders. The white blood cells, which can move on their own through the body's tissues, eventually return into the lymph vessels and become part of the lymph fluid. As the lymph fluid flows towards the veins, it passes through

lymph nodes. In the nodes, the fluid is filtered and bacteria are destroyed. If an infection exists, the lymph nodes may become swollen and sometimes painful. Most people have experienced the uncomfortable "swollen neck glands" during a cold. In some diseases, including lymphogranuloma venereum, the lymph nodes themselves are attacked by the disease-causing organisms.

Early symptoms: Five to 21 days (usually 7 to 12 days) after infecting sexual intercourse, a very small, painless, pimple-like sore appears on the sexual organs. In men, the sore usually appears on the glans (fleshy tip of penis), in the groove between the glans and the rest of the penis, or in the urethra (tube from bladder which runs through penis). In women, the sore may appear anywhere on the vaginal lips or within the vagina. The sore usually disappears by itself within a few days. Since the sore is painless, small and often hidden under the foreskin or within the vagina, it is rarely noticed by the infected person.

The LGV virus spreads from the site of the early sore to the lymph vessels and glands in the immediate area. If the sore is on the surface, that is, on the penis in the male or the external vaginal area in the female, the virus invades the lymph glands in the groin. Ten to 30 days after the infecting sexual intercourse, the lymph glands in one or sometimes both sides of the groin become swollen and tender. The swollen glands fuse together to form a single, painful, sausage-shaped mass called a bubo, which lies within the fold of the groin. (Any lymph gland swelling in the groin is called a bubo.) The lymph glands swell above and below the groin fold, giving the bubo a grooved appearance called the "sign of the groove". The skin over the bubo becomes bluish-red. Some of the glands forming the bubo are soft while neighbouring glands are hard. In most cases, the lymph glands are destroyed and several abcesses form which push to the surface of the groin and release pus. In 20% to 25% of cases, the bubo disappears by itself, even if untreated.

The formation of a bubo is much more common in heterosexual men than in women or homosexual men. In women, the original LGV sore is often situated deep in the vagina and the virus invades the deeper pelvic lymph glands rather than the glands in the groin. In homosexual men who have anal intercourse, the sore may form in the anus, and again, the virus invades the deeper pelvic lymph glands. In such cases, visible bubos do not form and the infected person remains unaware of his or her disease. Men who develop the obvious symptoms of LGV should immediately inform all sexual partners of their common infection.

Both men and women may experience fever, chills, abdominal pains, loss of appetite and joint pains as the virus invades the lymph glands. Backache may occur in women and homosexual men whose deep pelvic lymph glands are infected.

Late complications: The formation of a bubo is painful, obvious and unpleasant. Most people who develop this early symptom of LGV seek immediate medical attention if it is available. If treatment is delayed, or if a bubo does not form, the disease process continues and eventually causes complications. The time interval between infection and the development of complications varies from several months to 20 or more years.

Anal and rectal complications: LGV infection of the anus and rectum with resulting rectal damage can develop in two ways: in women, the virus can spread back from the vagina towards the anus by way of the deep pelvic lymph vessels. In both women and homosexual men, the LGV virus can be deposited directly in the anus and rectum during anal intercourse with an infected partner.

Pain and a bloody or pus-containing discharge from the anus are the first symptoms. If the disease is left untreated, the walls of the rectum become narrowed, forming a "rectal stricture". Bowel movement becomes difficult and painful and serious constipation develops.

Genital complications - elephantiasis: LGV infection of the lymph vessels in the vagina or penis can block the normal flow of lymph fluid. This stimulates massive growth of the sexual organs. Such growth is called genital elephantiasis. LGV elephantiasis is far more common in women than in men.

Cancer: If left untreated, the excessive tissue growth of LGV, such as rectal strictures and genital elephantiasis, can develop into cancer which is usually fatal.

Diagnosis

The diagnosis of LGV on the basis of symptoms alone is not possible since syphilis, chancroid and granuloma inguinale as well as some non-venereal diseases can cause very similar symptoms. In cases of swollen lymph glands in the groin, tests for all of the above diseases should be performed.

The presence of LGV can be proven by means of a skin test and a blood test. For the skin test, the doctor injects a small amount of "modified Frei antigen" (brand name: Lygranum, Squibb) under the skin of the patient's arm. If the person has LGV, a small blister, surrounded by a red border, develops within 2 to 3 days. The blood test, called the LGV complement fixation test (LGVCFT) is performed on a sample of the patient's blood. The LGVCFT is more accurate than the skin test.

Treatment

Lymphogranuloma venereum is one of the most difficult of the venereal diseases to treat. Although it can be cured by antibiotics, it responds slowly and treatment must be continued for at least 3 weeks.

Treatment of first choice: tetracycline

A 21 day course of tetracycline hydrochloride, in the dosage of half a gram (500 milligrams) taken by mouth, every 6 hours for a total daily dose of 2 grams, is the most effective treatment for LGV. Pregnant women and people who have a history of an allergic reaction to tetracycline must not receive this drug.

Treatment of second choice: sulfa drugs

One of the sulfa drugs such as sulfadiazine or sulfasoxazole (Gantrisin) is the treatment of choice when tetracycline cannot be used. Dosage is 4 grams swallowed at once plus half a gram (500 milligrams) every 6 hours for 21 days.

Sulfa drugs must be used with caution by black people (see "Treatment" in chapter on urinary tract infections).

Surgical treatment

Bubos that are on the verge of bursting through the skin should be drained through a sterile needle inserted into the abcess. Bubos that are in early stages should be left alone.

In cases of genital elephantiasis of the vaginal lips plastic surgery should be performed to restore the vulva to its original appearance. Surgery for elephantiasis in the male is difficult, but should be considered. Rectal strictures must be removed surgically. Corticosteroid drugs, which reduce scar formation, should be given in addition to antibiotics and surgery in the treatment of rectal cases.

Follow-up examination and tests

Since LGV is difficult to cure, all patients with this disease should receive careful follow-up examinations and tests. Blood tests should be performed every few months for the first year and then once a year for several years.

chancroid

Chancroid, also called "soft chancre" and "ulcus molle", is common in tropical countries but is rarely seen in other parts of the world. Not more than a few thousand cases occur each year in North America. Most cases occur in southeastern parts of the U.S.

The chancroid bacteria

The bacteria that causes chancroid, the Hemophilus ducreyi, was discovered in 1889 by an Italian doctor, Augusto Ducrey. This bacteria is quite difficult to grow in the laboratory.

Transmission

Chancroid is usually transmitted by vaginal, anal or oral-genital sexual intercourse. The bacteria is more likely to invade the sexual organs at a point of pre-existing injury, such as a small cut or scratch. It is possible that the disease can be transmitted by close physical contact other than sexual intercourse. Such non-sexual transmission is probably more common in hot and humid tropical areas. Women may be "carriers" of chancroid, that is, they may have the disease without any symptoms but pass on an active, symptom-producing form of the disease to male sexual partners.

Symptoms

Symptoms are more commonly seen in men than in women. From 1 to 5 days after infecting sexual intercourse, one, or more commonly several, small sores appear on the sexual organs. The sore is a raised bump surrounded by a narrow red border. It soon becomes pimple-like, filled with pus, and eventually ruptures to form a painful open sore with ragged, irregular edges. The sores bleed easily when touched. In some cases, they spread along a line to form a long narrow sore. In men, the sores usually appear on the penis or within the urethra. In women, they appear on the vulva, thighs, vagina, cervix, or within the urethra. The sores may be centered at the base of pubic hairs. They may spread by contact to the groin, inner thighs, anus or lower abdomen. In some cases, chancroid sores disappear by themselves within a few days.

Complications

In 50% of untreated cases, the chancroid bacteria infect the lymph glands in the groin. Within 5 to 8 days of the appearance of primary sores, the glands in one side (sometimes both sides) of the groin become enlarged, hard and painful. The infected glands fuse together to form a single, rounded, painful swelling called a bubo. The overlying skin is red. If untreated, the bubo may push to the surface and rupture, releasing its pus. A large open sore results, which is highly susceptible to infection by other bacteria.

Diagnosis

The diagnosis of chancroid is not easy. It is often confused with several other diseases including LGV and syphilis. There is no single laboratory test that can accurately detect chancroid in all cases. Therefore, several procedures must be used and the clinical impression of the examining doctor must be relied upon heavily.

Pus from the primary sore or a bubo should be examined under a microscope and also placed on a special nutrient jelly in an attempt to grow the bacteria. A small bit of skin from the sore should also be examined microscopically. If chancroid is the cause of the sore, certain characteristic changes in the cells of the skin may be visible.

Treatment of first choice: tetracycline

Tetracycline in the dosage of half a gram (500 milligrams) taken by mouth every 6 hours for 7 to 10 days will cure most cases of chancroid. Tetracycline should not be given to pregnant women or to people who have a history of allergic reaction to the drug.

Treatment of second choice: sulfa drugs

One of the sulfa drugs such as sulfadiazine or sulfasoxazole (Gantrisin) in the dosage of 1 gram taken by mouth every 6 hours for 7 to 12 days is also effective treatment for chancroid. Sulfa drugs must be used with caution in black people (see "Treatment" in chapter on urinary tract infections).

Other drugs for treatment of chancroid

If neither tetracycline nor sulfa drugs can be used, streptomycin should be prescribed. This drug should be used with caution since it can cause serious side effects including hearing loss.

Surgical treatment

Bubos that are about to burst should be drained through a sterile needle. Plastic surgery is sometimes necessary.

Follow-up examination

All patients should be examined every 3 months for 1 year after being treated for chancroid.

granuloma inguinale

Granuloma inguinale was first described in India in 1882. It is extremely rare outside of tropical countries. Not more than a few hundred cases occur each year in North America, mostly in southern areas of the U.S. Mainly because the disease is so rare, its precise nature is not understood.

The granuloma inguinale bacteria

The organism which causes granuloma inguinale was discovered at the beginning of this century by Charles Donovan, an Irish surgeon. The organism which today is called the Donovania granulomatis is believed to be a bacteria, although this is not certain. It can be seen under the microscope.

Transmission

It is by no means certain that granuloma inguinale is a sexually-transmitted disease. Many regular sexual partners of infected men and women never experience the disease themselves. The current theory is that granuloma inguinale is transmitted by sexual intercourse, but that it is only slightly contagious.

Symptoms

Symptoms may appear from 3 days to 6 months after sexual intercourse with an infected partner. A painless bump or blister appears on the sexual organs, on the thighs, in the groin, or near the anus. The blister soon becomes an open sore which is raised, rounded, velvety, and which bleeds easily. The sore does not heal on its own, but rather grows larger and somewhat painful. It can extend to the thighs, lower abdomen and buttocks, making the whole area raw and exposed to infection by other bacteria. In some cases there is swelling in the groin, but no real infection of the lymph glands in that area.

Symptoms occur more commonly in men than in women.

Diagnosis

To confirm the diagnosis of granuloma inguinale, a small bit of skin, taken from the edge of the sore, is examined under a microscope. If granuloma inguinale is the cause of the sore, the Donovania granulomatis bacteria can be seen.

Treatment of first choice: tetracycline

A 10 to 20 day course of tetracycline hydrochloride, given in the dosage of half a gram (500 milligrams) taken by mouth every 6 hours for a total daily dose of 2 grams, will cure most cases of granuloma inguinale. Tetracycline must not be given to pregnant women or to people who have a history of allergic reaction to the drug.

Treatment of second choice: ampicillin

A recent medical report indicates that ampicillin, a semi-synthetic form of penicillin, is effective treatment for granuloma inguinale. It can be given safely to pregnant women who are not allergic to penicillin. The recommended dosage is 250 to 500 milligrams to be swallowed every 6 hours for 30 or more days.

Other antibiotics

Other antibiotics, especially streptomycin, effectively cure this disease. However, streptomycin can produce serious side effects including hearing loss, and its use should be avoided if possible.

Follow-up examinations and tests

All patients should be examined every 3 months for one year after being treated for granuloma inguinale.

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venereal warts

Condyloma is an ancient Greek word meaning "knob" or "round tumor". Condylomata acuminata is the name for warts which appear on the genital organs, also called venereal warts. The Greeks and Romans realized that condylomata acuminata is a sexually transmitted disease, and it is mentioned in ancient erotic literature.

Cause

Warts on the genital organs are caused by a virus of the papillomavirus group. It is similar to the virus that causes common skin warts which appear outside of the genital area.

Transmission

It is presently believed that the condylomata acuminata virus is usually transmitted by vaginal, anal or oral-genital sexual intercourse, although genital warts have been found in individuals whose only sexual partner has no sign of this skin disorder. Genital warts appear more frequently in uncircumcised men than in the circumcised. The probability of developing condylomata acuminata after regular sexual intercourse with an infected partner is 60-70%.

Symptoms

Genital warts appear 1 to 3 months after the infecting sexual intercourse. In men the most commonly affected areas are the glans and foreskin, the meatus (opening of the penis), shaft of the penis and the scrotum, in that order. In homosexual men who have anal intercourse, warts may appear in or around the anus. In women, venereal

warts most commonly appear on the bottom part of the vaginal opening, but the vaginal lips, the deep parts of the vagina and the cervix can be affected as well.

The physical appearance of venereal warts depends to some extent on the part of the genitals affected. In moist areas, the warts are usually pink or red and soft with an indented, cauliflower-like appearance. Such warts can be single or multiple and groups of moist warts can grow together to form a single large tissue mass. On dry skin, such as the shaft of the penis, the warts are more commonly small, hard and yellow-grey, resembling ordinary skin warts appearing on other parts of the body.

Genital warts tend to grow larger if kept moist by vaginal or urethral discharge caused by diseases such as trichomonal vaginitis and gonorrhea. For unknown reasons, pregnancy can stimulate venereal warts to grow quite large.

Diagnosis

The diagnosis of condylomata acuminata is usually obvious on the basis of appearance, and laboratory tests are rarely necessary.

Treatment

If the warts are small, they can be removed easily by the surface application of podophyllin, a dark red resin obtained from the mandrake plant. The warts should first be wiped clean and, using a cotton-tipped swab, a small amount of a solution of 10-25% podophyllin in alcohol should then be painted onto the surface of the warts. The chemical is irritating and should not be allowed to drip onto surrounding, unaffected parts of the genitals. **The podophyllin should be left on the warts for 6 hours, after which it must be washed off thoroughly with warm water and soap.** If podophyllin is left on for longer than 6 hours it will cause painful chemical burns which are slow to heal. Following podophyllin treatment, the warts dry up and fall off within a few days. In some cases, a second treatment is necessary after one week.

If genital warts are large they must be removed surgically. This can often be accomplished under local anaesthetic; however, in some cases plastic surgery under general anaesthetic is necessary.

herpes genitalis

Herpes genitalis is a disease of the genital organs caused by the herpes simplex virus (also called the herpes virus hominis - HVH). There are two closely related kinds of herpes virus, named simply type 1 and type 2. Herpes infection of the genitals is usually caused by the type 2 virus, while infection of other parts of the body such as the lips ("cold sores" or "fever blisters"), throat, eyes, skin, stomach and brain are usually caused by the type 1 virus.

Viruses

The study of viruses, called virology, is at the frontiers of medical science and philosophy. We still do not understand the nature of the virus. It appears to be a "living" thing in the sense that it can reproduce itself; on the other hand, it appears to be a chemical in that it can crystallize into a lifeless form which does not have any apparent requirements.

Viruses are the smallest organisms that infect man. They are large molecules similar to the molecules which make up the genes in the human cells (these molecules are called DNA).

Once inside the body, a virus can invade an individual cell, take over control of its functions from the cell's own nucleus, and instruct the cell to produce virus molecules. In this way the virus "reproduces". Newly formed viruses escape from the colonized cell and invade neighbouring cells to start the process over again.

The herpes virus has an excellent relationship with the human body. Once the virus invades, it causes symptoms for just a few days. It then becomes dormant and continues to live in the cells of the body, without causing symptoms, for the rest of the person's life.

Transmission

The manner in which the herpes virus type 2 reaches the genital organs is not completely understood. It is currently thought that the virus is usually transmitted by vaginal, anal, or oral-genital sexual intercourse; however, there are cases of herpes genitalis in people whose only sexual partner has no evidence of herpetic infection. Herpes genitalis is more common in women than in men.

Symptoms

After an unknown incubation period following infecting sexual intercourse, one or several groups of small and painful bumps or blisters appear on the sexual organs. In women, the areas most often affected are the vaginal lips; but the clitoris, outer part of the vagina, anal area and cervix can be involved as well. In heterosexual men, the glans or shaft of the penis are the most commonly affected areas. Homosexual men can have blisters in or around the anus. The blisters soon rupture to form soft, extremely painful open sores on a reddish base. On the cervix, sores are painless and usually not noticed. The sores are covered by a yellow-grey secretion. In women, sores can spread and involve the entire surface of the vaginal lips. If bacteria infect the exposed tissues, the sores discharge pus or blood and the lymph glands in the groin may become tender and enlarged.

After 4 to 5 days the sores become less painful and begin to heal by themselves. The skin is gradually replaced starting from the edges of each sore. The sores usually heal completely, with little if any scarring, by the end of 10 to 20 days.

Complications

Recurrent infection: In most cases of herpes genitalis the sores on the vulva or penis disappear and never return, even though the virus continues to live in the cells of the genital organs; however, in some cases, the sores reappear one or several times, and the whole 10 to 20 day process of healing has to occur again. Reappearance of genital sores is similar to the reappearance of a "cold sore" on the lips or mouth. The herpes virus is most likely to become reactivated when the body is weakened by such things as fever, cold, emotional upset, fatigue, sunburn, etc. The best defence against recurrences of herpes genitalis is to maintain the body in a state of good health by sufficient good food, rest and exercise.

Cancer: Although the relationship is not completely understood, an infection by the herpes virus makes a woman more susceptible to cervical cancer. Fortunately, cervical cancer can be detected at an early stage by the simple Pap test. If detected early, cervical cancer has a 100% cure rate.

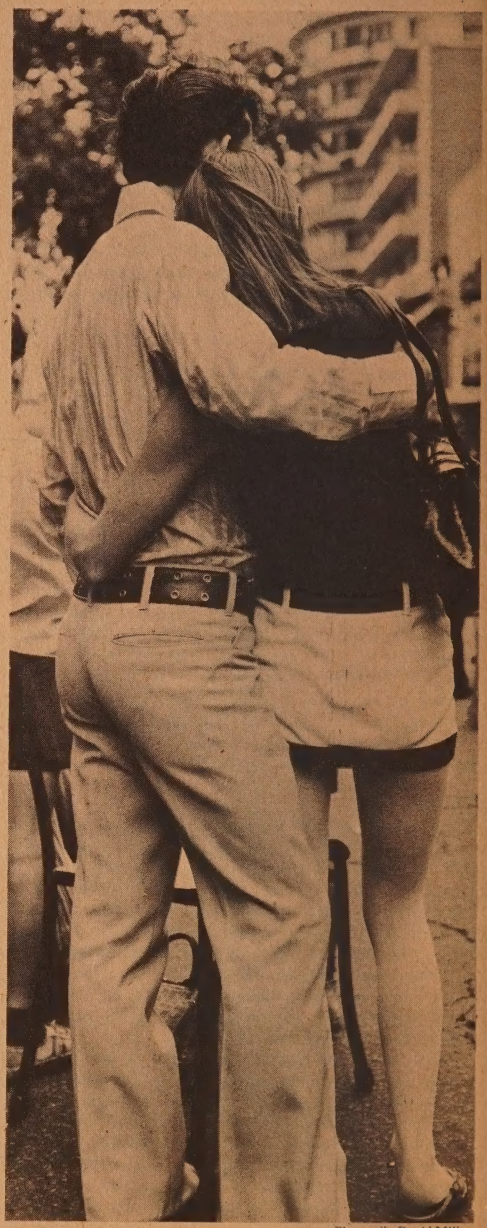
It has been known for many years that cervical cancer is far less common in women who have sexual intercourse only with men who are circumcised (a minor surgical procedure done soon after birth to remove the foreskin of the penis). Today we know that the herpes virus can be carried in smegma, the secretion produced under the foreskin in uncircumcised men, and that such men are more likely to transmit the herpes virus to their sexual partners. Also, cancer of the penis is practically unknown in circumcised men.

Infection of the newborn: An infant may become infected during birth with herpes virus type 2 while passing through its mother's infected cervix or vagina. It is also possible that some infants become infected while still in the uterus. Premature babies are particularly susceptible to such infections. The results of herpes infection of the newborn are extremely variable; in some cases the child recovers completely, while in others, it develops a severe brain infection which is rapidly fatal. The incidence of such infection is not known, but it has been suggested that many stillbirths and miscarriages are actually the result of herpes infection.

Diagnosis

Diagnosis of herpes genitalis is often missed, because many doctors fail to suspect the virus as the cause of genital sores. Herpes genitalis is often misdiagnosed as syphilis or chancroid. Therefore, the disease is probably more common than is generally realized. It has been estimated that as many as 6% of women and 3% of men attending VD clinics in some areas have herpes genitalis. In all cases of multiple sores on the genitals, herpes infection should be suspected.

To test for herpes genitalis, a cotton swab is passed gently over the genital sores and the secretions and cells picked up are smeared on a microscopic slide. The slide is stained by the Pap staining technique (as for cervical cancer). In women, secretions from the cervix should also be tested, even if no sores appear on its surface. If the herpes virus is present, characteristic changes in the nucleus of cells taken from the sores can often be seen.



Photocell - David Miller

Attempts should also be made to culture the virus. The laboratory growth of the herpes virus is not easy, and can only be accomplished by a well-equipped hospital or research virology lab.

Treatment

There is no antibiotic yet available that can kill the virus.

Sulfa cream should be placed on the herpes sores to kill bacteria that can infect the exposed tissues. Wet dressings of cool water and the use of a surface anaesthetic such as Pontocaine may be useful in relieving pain. Oral pain killers such as aspirin with codeine should be prescribed.

Experiments are being performed with chemicals called idiodeoxyuridine (IDu) and Ara-C which appear to interfere with the reproduction of the virus. Results have been inconsistent.

In some cases where herpes sores reappear several times, it may be worthwhile to try IDu or Ara-C. X-ray exposure of the infected organs may also be attempted, but this is more dangerous. X-rays of the genitals should never be given to pregnant women because of the risk of injuring the fetus.

Follow-up examination and tests

People who have herpes genitalis should be examined once or twice a week until the sores disappear to ensure that secondary bacterial infection does not develop. Women who have herpes genitalis and women who have regular sexual intercourse with a man who develops herpes genitalis, must have a Pap test for cervical cancer every 6 months for the rest of their lives.

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pubic lice ('crabs')

"Crabs" is the term commonly used to mean infestation of the pubic area by Phthirus pubis - the pubic or "crab" lice. When viewed under a microscope, this louse looks very much like a crab with three pairs of claws and four pairs of tiny legs. Fortunately, the pubic louse is no larger than a pinhead.

The distance between the rear legs of the pubic louse is about equal to the average distance between human pubic hairs. The pubic louse moves by swinging from hair to hair. Actually, the pubic louse does not travel around very much. With its claws holding tightly onto a pubic hair, the louse inserts its mouth into the skin where it is content to remain still, feeding from tiny blood vessels.

The pubic louse is yellowish-grey and quite difficult to see on white skin. When the louse has just had a meal, it is swollen with blood and can be seen more easily as a rust coloured speck. If separated from its human host, the pubic louse dies within 24 hours.

During their 30 day lifetime, adult pubic lice mate frequently. The female lays about three oval, whitish eggs every day, which she cements firmly to one side of a pubic hair near the surface of the body. The eggs are hard and can be felt more easily than seen. The eggs hatch after 7 to 9 days.

Transmission

Pubic lice are usually transmitted from person to person by the very close physical contact of sexual intercourse. In some cases, people become infested after sleeping in a bed used by a person who has pubic lice.

Symptoms

The symptoms of "crabs" vary with the individual. Some people have no symptoms at all while most others experience intolerable itching. Scratching does not bring relief, but can carry the pubic lice on the fingers to other hairy parts of the body such as the thighs, underarms and head. It is believed that the itchiness is a kind of allergic reaction to the bites of the pubic louse and that not all people develop the allergy. In some people, the pubic lice bites cause a mild rash composed of small, sky-blue spots.

Diagnosis

Diagnosis is made by finding the lice or their eggs attached to the pubic hairs.

Treatment

The pubic lice and their eggs are not affected by normal soap, but they can be killed easily by the local application of a drug called gamma benzene hexachloride which is available as a cream, lotion or shampoo. In the U.S. it is sold under the brand name "Kwell" and in Canada, under the name "Kwellada". A doctor's prescription is not necessary. A bottle of Kwell(ada) can be obtained in most drugstores for about $2.00.

The cream or lotion should be massaged into the affected areas and left there for 24 hours, after which it should be rinsed out thoroughly. The shampoo can be used instead of the cream or lotion, especially for pubic lice on the scalp; the shampoo should be worked into a lather for 4 to 5 minutes and then should be rinsed out immediately. The opening of the penis, the inner vaginal lips and the vaginal opening should be avoided. If necessary, treatment can be repeated after four days. Treatment brings rapid relief from the itching.

After treatment, the person should have a complete change of clean clothing. Since the lice die soon after being separated from the body, clothing that has not been worn for more than 24 hours can be worn without fear of repeated infestation. Special cleaning or spraying of clothing with insecticides is not necessary.

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